This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

NYPL RESEARCH LIBRARIES
3 3433 07482543 5

505578

Published monthly by the
University of the State of New York

High School Departmen

INCLUDING ACADEMIES AND ALL INTERESTS OF SECONDARY EDUCATI

Bulletin 24

ASSOCIATED ACADEMIC PRINCIPALS

PROCEEDINGS OF THE

19th ANNUAL CONFERENCE

Held at Syracuse City Hall, December 28-30, 1903

PAGE
Officers for 1903 and 1904 311
Summary of sessions 312
Summary of action 314
Addresses, papers and discussions 319
Opening remarks: Pres. T. H. Armstrong 319
Admission to College by Examination: Prof. Charles D. Seely 322
Educational exhibit at the St Louis Exposition: DeLancey M. Ellis 355
Report of Syllabus Committee on High School English: Prin. T. B. Lovell 361
Professional Status of School
Prin. Howard Conant .. 404
Annual address: Unseen Forces that are Shaping our National Education: Pres. Henry Hopkins 4
The Effect of Present Methods of Teaching English on the Student's Appreciation of Good Literature: Sup't Gurdon R. Miller 437
Report of committee on necrology: Prin. T. B. Lovell 455
Final reports and miscellaneous business 458
Register of attendants 461
Index 473

ALBANY
UNIVERSITY OF THE STATE OF NEW YORK
1904

Price 25 cent

University of the State of New York

REGENTS 1903

With years of election

2	William Croswell Doane D.D. LL.D. *Chancellor,*	Albany
78	Whitelaw Reid M.A. LL.D. *Vice Chancellor,*	New York
77	Chauncey M. Depew LL.D.	New York
77	Charles E. Fitch LL.B. M.A. L.H.D.	Rochester
381	William H. Watson M.A. M.D. LL.D.	Utica
881	Henry E. Turner LL.D.	Lowville
1883	St Clair McKelway M.A. L.H.D. LL.D. D.C.L.	Brooklyn
1885	Daniel Beach Ph.D. LL.D.	Watkins
1890	Pliny T. Sexton LL.D.	Palmyra
1890	T. Guilford Smith M.A. C.E. LL.D.	Buffalo
1893	Lewis A. Stimson B.A. LL.D. M.D.	New York
1895	Albert Vander Veer M.A. Ph.D. LL.D. M.D.	Albany
1895	Charles R. Skinner M.A. LL.D. Superintendent of Public Instruction, ex officio	
1897	Chester S. Lord M.A. LL.D.	Brooklyn
1900	Thomas A. Hendrick M.A. LL.D.	Rochester
1901	Benjamin B. Odell jr LL.D. Governor, ex officio	
1901	Robert C. Pruyn M.A.	Albany
902	William Nottingham M.A. Ph.D. LL.D.	Syracuse
03	Frank W. Higgins Lieutenant Governor, ex officio	
03	John F. O'Brien Secretary of State, ex officio	
1903	Charles A. Gardiner LL.B. M.A. Ph.D. LL.D.	New York
1903	Charles S. Francis B.S.	Troy
	One vacancy	

SECRETARY

Elected by Regents

1900 James Russell Parsons jr M.A. LL.D.

DIRECTORS OF DEPARTMENTS

1888 Melvil Dewey M.A. LL.D. *State Library and Home Educ*

1890 James Russell Parsons jr M.A. LL.D.
Administrative, College and High School

1890 Frederick J. H. Merrill Ph.D. *State Museum*

University of the State of New York

High School Department

INCLUDING ACADEMIES AND ALL INTERESTS OF SECONDARY EDUCATION

PUBLIC LIBRARY
1913

Bulletin 24

ASSOCIATED ACADEMIC PRINCIPALS

PROCEEDINGS OF THE

19th Annual Conference

Held at Syracuse city hall, Dec. 28-30, 1903

OFFICERS FOR 1903

President, T. H. Armstrong, Medina
Vice president, Howard Conant, Elmira
Secretary, S. Dwight Arms, Albany
Treasurer, Ernest E. Smith, Canajoharie
Executive committee: E. M. Sanford, Argyle; E. F. McKinley, Freeport; W. S. Steele, Olean

OFFICERS FOR 1904

President, Howard Conant, Elmira
Vice president, W. S. Steele, Olean
Secretary, Schuyler F. Herron, Herkimer
Treasurer, Ernest E. Smith, Canajoharie
Executive committee: L. F. Hodge, Malone; O. W. Wood, Delhi; A. J. MacElroy, Rockville Center

SUMMARY OF SESSIONS

1st session, Tuesday, December 29, 9.40 a. m.

Association called to order by Pres. T. H. Armstrong

Remarks by the president

Admission to College by Examination

Prof. Charles D. Seely, Brockport Normal School

Prof. Charles E. Bennett, Cornell University

Prin. O. W. Wood, Delaware Academy and Union School, Delhi

Prof. Warrington Somers, Auburn High School

Sup't F. D. Boynton, Ithaca High School

Prin. A. R. Brubacher, Gloversville High School

Prin. Benson Howard Roberts, A. M. Chesbrough Seminary, North Chili

Prin. W. S. Steele, Olean High School

Prof. John Greene, Colgate University

Educational Exhibit at the St Louis Exposition

DeLancey M. Ellis, state director of education at the St Louis Exposition

2d session, Tuesday, 2.25 p. m.

Report of syllabus committee on high school English

Prin. Thomas Bailey Lovell, Niagara Falls High School, *chairman*

Prof. Brainerd Kellogg, Polytechnic Institute of Brooklyn

Dr J. M. Hart, Cornell University

Prin. Arthur Marvin, Schenectady Union Classical Institute

Sup't F. D. Boynton, Ithaca High School

Remarks and motion

Prin. C. W. Evans, East Orange (N. J.) High School

Professional Status of School Men

Prin. Howard Conant, Elmira Free Academy

Prin. C. L. Mosher, Canton High School

Prin. A. J. MacElroy, Southside High School, Rockville Center

Prin. R. V. Spencer, Schoharie High School

Prin. O. W. Wood, Delaware Academy and Union School, Delhi

Prin. J. L. Lusk, Union High School

Sup't E. S. Redman, Hornellsville High School

Inspector A. C. Hill, Department of Public Instruction, Albany

Prin. F. R. Darling, Portville Union School

Prin. W. E. Gordon, Patchogue High School

Prin. H. D. Bacon, Buffalo

Prin. Arthur Detmers, Lafayette High School, Buffalo

Prin. J. Edward Banta, Binghamton High School

Sup't T. H. Armstrong, Medina High School

3d session, Tuesday, 8.30 p. m.

Some of the Unseen Forces that are Shaping our National Education: annual address

Pres. Henry Hopkins, Williams College

4th session, Wednesday, December 30, 9.40 a. m.

Effect of Present Methods of Teaching English on the Student's Appreciation of Good Literature

Sup't Gurdon R. Miller, Binghamton High School

Sup't C. S. Marsh, Auburn High School

Prin. Guy H. Baskerville, Goshen High School

Prin. Thomas Bailey Lovell, Niagara Falls High School

Prof. William D. Lewis, Syracuse High School

Dr Roland S. Keyser, Jamaica Normal School

Prin. W. J. Deans, Palmyra Classical High School

Report of committee on necrology

Prin. Thomas Bailey Lovell, Niagara Falls High School

Final reports and miscellaneous business

Sup't J. C. Norris, Canandaigua Academy

Invitations to educational meetings

Sup't Henry P. Emerson, Buffalo

Prof. George P. Bristol, Cornell University

Transfer of duties to new president

Sup't T. H. Armstrong, Medina High School

Response

Prin. Howard Conant, Elmira Free Academy

Adjourned 11.45 a. m.

SUMMARY OF ACTION

APPOINTMENTS

Tuesday morning President Armstrong announced the following committees.

Committee on nominations. J. M. Thompson, Penn Yan; C. H. Warfield, Little Falls; F. C. White, Cornwall-on-Hudson. [For report *see* p. 317]

Committee on resolutions. S. F. Herron, Herkimer; E. P. Smith, Port Jervis; G. A. Bolles, Springville. [For report *see* p. 318]

Committee on greetings. H. D. Bartlett, Holley; E. F. Knapp, Hempstead. [For report *see* p. 318]

Committee on anniversary exercises. J. C. Norris, Canandaigua; A. C. Hill, Department of Public Instruction, Albany; T. B. Lovell, Niagara Falls; S. D. Arms, Regents office, Albany; Francis B. Cheney, Cortland; F. L. Gamage, Garden City.

REPORTS

Treasurer

Receipts

ASSOCIATED ACADEMIC PRINCIPALS

in account with Ernest E. Smith, *Treasurer*

1903			
Jan.	30	Balance on hand, as shown by last report..................	$944 84
Dec.	28–30	Dues of 1903..................	425 ..

1904				
Jan.	1	Grammar School Principals, account of joint program......	$20 ..	
		Albany Savings Bank, accrued interest	20 23	
		Science Teachers Association, account of joint program....	20 ..	
				$1 430 07
1903		**Disbursements**		
Feb.	7	T. H. Armstrong, account legislative committee............	$29 02	
	21	Expenses, meeting executive committee	85 58	
	25	C. F. Williams, printing and postage	45 65	
	25	S. D. Arms, postage...........	19 ..	
	25	C. P. Brate, printing stationery	26 15	
Mar.	17	Howard Conant, expenses legislative committee............	18 03	
Ap.	27	T. H. Armstrong, expenses legislative committee............	98 16	
Dec.	17	Badges and registration cards..	17 ..	
	28	S. D. Arms, postage and incidentals	23 70	
	28	Arthur Marvin, expenses syllabus committee	24 ..	
	28	E. W. Lyttle, expenses syllabus committee	12 50	
	29	T. H. Armstrong, postage and incidentals	14 14	
	29	T. B. Lovell, expenses syllabus committee	1 ..	
	30	Expenses Pres. Henry Hopkins.	13 ..	
	30	Janitor, city hall.............	5 ..	
	30	F. D. Boynton, expenses syllabus committee	11 65	

1903				
Dec.	31	F. W. Clemons, envelops	$2 ..	
	31	S. D. Arms, salary as secretary	50 ..	
	31	H. J. Hamilton, postage and clerical service	13 74	
	31	Helen Wyncoop, stenographer.	11 ..	
	31	E. E. Smith, salary as treasurer.	25 ..	
	31	C. F. Williams, printing programs	82 60	
1904				
Jan.	10	E. E. Smith, postage and incidentals	5 66	
	23	M. L. Vanderzee, transcribing proceedings	35 ..	
				$668 58

Balance on hand		$761 49
Held by Albany Savings Bank	$693 26	
Held by Albany County Bank	68 23	
		761 49

Executive committee

The following budget for the ensuing year was approved:

Legislative committee	$150
Printing and sundry expenses	100
Syllabus committee	50
Executive committee	50
Secretary's salary	50
Treasurer's salary	25
St Louis Exposition	25
Stenographer	50
	$500

E. M. Sanford
E. F. McKinley
W. S. Steele
Executive committee

Committee on nominations

The following were recommended:

Officers. *President,* Howard Conant, Elmira; *Vice president,* W. S. Steele, Olean; *Secretary,* Schuyler F. Herron, Herkimer; *Treasurer,* Ernest E. Smith, Canajoharie.

Executive committee. L. F. Hodge, Malone; O. W. Wood, Delhi; A. J. MacElroy, Rockville Center.

The secretary was authorized to cast one ballot for these officers, and they were declared duly elected.

State appropriation for libraries

Prin. J. L. Lusk offered the following resolution, which was passed unanimously:

Whereas, One half the 11,000 school districts of this State are without libraries, and the subacademic grades of our union and high schools are greatly in need of more library money, and

Whereas, The annual state appropriation of money for these purposes has not been increased during the past 50 years, therefore

Resolved, That we, the members of the Associated Academic Principals of New York State, do respectfully request the State Legislature to increase the appropriation for libraries from $50,000 to $100,000, in harmony with the request of our state superintendent, Hon. Charles R. Skinner, in his last annual report.

Resolved, That a copy of these resolutions, signed by our president and secretary, be sent to Governor Odell and the chairmen of the ways and means and Senate finance committees.

[*Signed*]

T. H. Armstrong, *President*
S. D. Arms, *Secretary*
For the Associated Academic Principals

Tenure of office for teachers

Prin. Howard Conant, for the committee presented the following:

Resolved, That we, the Associated Academic Principals of the State of New York, favor the formulating and urging at the next session of our state Legislature of such a measure as will give to the teachers of the State a more permanent tenure of office.

Among other things we believe the bill should provide as follows:

1 That no teacher, after serving in the same school for three successive years, shall be removed except for cause.

2 That this act should apply to all cities, all incorporated villages, all union free school districts organized under special act of the state Legislature.

3 That this act should apply to all teachers who have already served three years and who receive their next regular appointment. [*See* p. 414]

Committee on resolutions

Superintendent Herron presented the following resolutions, which were unanimously adopted:

Resolved, That the thanks of this association are hereby tendered, first, to the Chamber of Commerce and the University Club, for their courtesy in arranging a reception to the educators of the State assembled at this meeting; second, to the city authorities and Superintendent Blodgett for the provision made by them for our meetings; third, to the press for its full and impartial reports of our proceedings.

Resolved, That we express our appreciation of the program prepared by President Armstrong, and of the scholarly papers presented.

Resolved, That we thank President Hopkins for his enlightening and inspiring address.

Resolved, That we cordially approve the suggestion made by Chairman Boynton of the syllabus revision committees, to the effect that full reports of proposed action shall be sent to all principals for criticism before the next meeting; and, be it further

Resolved, That all changes in the present syllabus before being recommended to the Regents for adoption, ought to receive the approval of a majority of the principals who shall submit criticisms.

SCHUYLER F. HERRON
GEORGE A. BOLLES
EDWARD P. SMITH

Committee on greetings

The committee on greetings reported that they had sent the following communications:

To the State Teachers Association of New Jersey

The Associated Academic Principals assembled at Syracuse extend hearty greetings.

To the New York State Science Teachers Association

The Associated Academic Principals extend greetings to the New York State Science Teachers and express the hope that our meetings together may be of mutual benefit.

To the New York State Training Teachers Association

The Associated Academic Principals extend greetings. May your deliberations be most profitable and result in increased efficiency in the work of our profession.

To the Grammar School Principals Council

The Associated Academic Principals assembled at Syracuse extend greetings to the Grammar School Principals Council and express the hope that their deliberations may be most profitable, and that closer acquaintance and good fellowship may be promoted between the two associations.

The secretary read the following communications:

To the Associated Academic Principals

The New York State Council of Grammar School Principals express thanks to the Associated Academic Principals for their cordial greetings, and hope that their 19th holiday conference is proving one of unusual profit, and that the hearty cooperation of the two organizations may result in greatly advancing the educational interests of the State.

Orrin C. Bugbee } *Committee*
Charles E. Lawton }

Mr T. H. Armstrong, President Associated Academic Principals

I am requested by the State Science Teachers Association to convey to the Academic Principals its appreciation of the message of good fellowship received from your body and to extend to them our greeting.

George M. Turner
Secretary pro tem.

ADDRESSES, PAPERS AND DISCUSSIONS

Tuesday morning, December 29

Pres. T. H. Armstrong—For 19 years we have been gathering here in the same place and for the same purpose. From a very small body we have grown to be a very large body—not this morning but usually. Not only that, but the Academic Principals of the State of New York have grown to be an influential body, one which is doing much toward shaping the educational policies of the State. We have met here this morning for the usual purpose of discussing educational questions. We have tried to place on the program such questions as we felt to be of vital interest to school men, specially men employed in secondary school work. We have tried very hard to make the program such that every man and every woman who is a member of this body will feel perfectly free to express his or her views on any subject. We have appointed one man to open and one or two to follow in the discussion in order to give a basis for free discussion by all present. We trust that each of you will feel at perfect liberty to discuss any or all of the subjects. Many of you have served as president of some educational body in some part of the State, and you will understand readily how difficult it is to select men to lead or follow in discussion. So we must depend very largely on you who are here this morning and who have not been specially selected to make the meeting of the greatest interest.

We are pained this morning to know that the reaper Death has been among us in an unusual manner during the past year. By a strange coincidence, Dr Farr and the Rev. Dr Cutting, who were present at the first meeting of this body here, have both died within the past few weeks. Dr Stout and Dr James Milne, both of whom have been accustomed to meet with us, and whose voices have been heard in this body frequently, will meet with us no more. Principal Hoffman of Rockville Center, who has served on committees in this body and been active in debate, is also dead. I feel, therefore, that we should take some special note of this matter, and at the beginning of this conference I wish to appoint a committee on necrology which shall be a standing committee during the year. I believe that notes should be made in our minutes of members who have been accustomed to meet with us but who have passed out from us. We are scattered throughout the State, and many of us do not hear of the deaths of our members except through the records of our proceedings. I shall appoint as necrology committee Principal Lovell of Niagara Falls, Principal McKinley of Freeport and Principal Lee of Churchville. I hope that committee will draft suitable resolutions and present them later to this body. I also hope that any of the members of this association who know of any member who has died during the past year will take pains to inform this committee, giving facts.

You are reminded also that this is the 19th anniversary, and that next year will be the 20th of the organization of this body. By resolution last year it was agreed that some special celebration should be had in commemoration of this event. Those who were present will remember that Dr Farr made the motion and was appointed chairman of a committee to prepare suitable exercises for our 20th anniversary. However, Dr Farr is no more; and so I will appoint a committee to take charge of these exercises.

Many of you have no doubt noticed on the program that the report of the nominating committee comes early in the session. At a meeting of the executive committee held last June the matter was fully discussed, and it was decided that heretofore the report of the nominating committee had come at a time when many of the members had left for their homes and that it was not right that that report should be brought in when so few of the members were present. It was therefore decided to have the reports of committees presented during the middle session of the conference. The minutes were not in my possession when we made up the program, and so we placed the committee reports in the Tuesday morning session. However, I found that I could make a change in the program as printed; and the report of the nominating committee and the miscellaneous business will be taken up in the middle of the afternoon session, and the address of Mr Ellis, who has charge of the St Louis exhibit work for this State, will be changed to this morning, at the time put down on the program for the report of the nominating committee and the miscellaneous business.

You will notice also that we have only one subject aside from Mr Ellis's address for this morning, so there will be plenty of time for the discussion of this subject and also to discuss some other subject which you may choose, either from the subjects that are given here or subjects that you may desire to have discussed. I hope that you will feel free to ask for any subject that you may desire.

The first that presents itself for discussion this morning is college entrance requirements.

ADMISSION TO COLLEGE BY EXAMINATION

PROF. CHARLES D. SEELY, BROCKPORT NORMAL SCHOOL

How shall students be admitted to college? This question was answered in one way by our fathers, is answered in more than one way by ourselves, yet it is a question which still waits for an answer. Many can recall the time when admission by examination was the only way. Yet the methods were so various that few found difficulty in matriculating, and practically none were rejected. In other words there was a form of examination, but little substance. Nearly all colleges, being anxious to secure students, made the standard adjustable. There was some necessity for this, owing to the widely divergent character and usually low grade of preparatory schools. When the examination, which often was chiefly or wholly oral, showed a serious lack of scholarship in the candidate, he was told that the work of his first term, or year, would be considered far more important than his examination. This indulgent method was not wholly without merit. Students whose advantages for preparation had not been good, who yet possessed excellent ability, often developed strongly in college work and became men of high scholarship. Others who, after completing preparatory work, had felt obliged to devote from one to three years to earning money for future college expenses, were saved, in an educational sense, and often outstripped their more fortunate fellows before senior year.

The evolution of educational methods and the greater variety of courses which has resulted from the elective system in college have largely changed all this. The broader and more exacting work required by these courses makes a more imperative demand for thorough preparation. In order to carry such work successfully, the student's mind must be trained to grasp the problems which are sure to present themselves. The question which he inevitably must face is not, what have you done? but, what can you do? Power to do is what he needs and must have. How shall the colleges determine whether the candidate for admission possesses this power?

The older and larger institutions, most of them, still answer this question by requiring of all candidates an examination much more rigid and covering more ground than that of a former generation. Such examinations are designed not only, as in former years, to test the memory, but more specially the power of independent thought and reasoning. To this end, in languages both ancient and modern, translation at sight is employed, and translation from English into the given language of connected prose passages. In mathematics, original problems and propositions are used.

Most of the smaller and some of the larger colleges for men, and nearly all the colleges for women, with a few notable exceptions, like Radcliffe and Bryn Mawr, admit both by examination and by certificate from "approved" secondary schools. Many believe that there are certain advantages in the latter arrangement, one of which is a closer relation between the college and the secondary school, though it is certainly open to question whether any such closer relation has been brought about by this system. Some also believe that this plan is adapted to elevate the standard of scholarship in the secondary school. To my mind this is more than doubtful.

Colleges which admit by certificate, in their published circulars and catalogues usually speak of this plan as a "privilege" accorded to the secondary schools and tell us that in certain contingencies such privilege will be withdrawn. Doubtless there are some teachers who consider this a real privilege; but to those of us who do not, must it not seem a little "peculiar" to have this privilege conferred on us without our asking, coupled with the threat to withdraw it if we do not use it properly?

Some years ago the principal of a school of excellent standing told me that, though his school used certificates, he had never asked the privilege, and yet some of the most prominent colleges had asked him to accept it, intimating that they would gladly receive graduates from his school in this way. A well known New England woman's college of high standing was one of these. His students therefore understood that they might enter this college by certificate; and, when one of the best of these later applied for admission, objection was made that the school was not on the approved list. The principal, in surprise, wrote to the college, rehearsing the circumstances, and complained, as he had a right to, that he was placed in a false position. Apology was made, and the candidate was then received. This trouble had been caused doubtless by an oversight.

A teacher, after being elected to a responsible position in a well known school, received a letter from a neighboring college stating that it had accepted students on the personal certificate of his predecessor and would be greatly pleased to continue similar relations with him. The offer was declined, though students from the school continued to enter this college by certificate and are still doing so, but the certificate is that of the principal and not that of the teacher before alluded to. Cases like these tend to show that in the past at least, the colleges have been no less anxious to receive certificated students than the schools to send them, and, one is tempted to think, somewhat more so. Why, then, should colleges speak of "privilege" and threaten its withdrawal?

There is another point in the administration of the certificate plan which, though involving a minor objection, yet seems deserving of notice. Presumably, recognizing the dangers which threaten and which seem inseparable from the system, the colleges now insist that blank forms prepared by themselves shall be filled out by the secondary school and signed by its principal. These blank forms differ widely in the amount and minuteness of the information required. Sometimes such information can be furnished only approximately, unless the most minute records have been kept, which would require much time and trouble, and which are practically out of the question unless such certificates can be uniform.

The blank of one university allows altogether too small space for " amount of work " to be specified. It is not easy to specify amount in Latin composition, for instance, on a line less than an inch and a half long. Neither is it easy on a line an inch long, to specify " time given " when Latin composition may have extended over one year or two years and may have been done in connection with translation, or not on certain specified days of the week. As to " date of examination," there may have been no examination at all, since some schools excuse from examination all those who attain a certain rank in class work.

The " number of pages " translated in German and French is required. In one case which came under my notice this translation had been done from extracts taken from several different authors, some of these extracts consisting of two or three pages, some of one, others of one half or two thirds of a page. The teacher made the best approximate estimate possible, and the certificate was sent. Back it came, with pencil note on the margin, " Please comply." The teacher, having a surplus of good nature and pity for the candidate, took her books, carefully counted up the pages and half pages and returned the document, to the satisfaction, let us hope, of those most interested.

But this blank is as nothing in peculiarity compared with one of 27 pages now sent out by an association of New England colleges which receive certificates, and labeled: "Application for Approval of School." I have in my possession copies of this blank sent out by Smith and Wellesley, and I can best indicate its character by reading some of the questions contained therein.

APPLICATION FOR APPROVAL OF SCHOOL

I hereby request that the . . . in . . . be placed upon the list of schools approved by Wellesley College.

Principal

190

Principals of schools are requested to give as full and exact answers as possible to the following general questions, and also to those under each department of study. They are requested to send to the college the latest catalogue of the school and a copy of each course of study.

GENERAL

1 Name and location of school

2 *a* Number of teachers, college graduates: Male. . . Female. . . From what colleges? . . .

b What subjects are taught by college graduates?

c Number of teachers, not college graduates: Male. . . Female. . . From what schools? . . .

3 Total number of pupils in school at time of application

4 Average number of graduates per year for the past three years

5 Average number who have entered college during the past three years

6 Names of the several courses of study provided, and the number of years required for the completion of each: The. . . course, . . years. . . The. . . course, . . years. . . The. . . course, . . years. . .

7 Number of weeks in school year

8 What colleges have accepted your students on certificate?

9 What colleges have accepted your students on examination?

ENGLISH

1 Number of weeks devoted to English: First year. . . Second year. . . Third year. . . Fourth year. . .

2 Number of periods per week devoted to English: First year. . . Second year. . . Third year. . . Fourth year. . .

3 What is the length of each period?

4 What textbooks are studied? First year. . . Second year. . . Third year. . . Fourth year. . .

5 What proportion of the time is devoted to composition? First year. . . Second year. . . Third year. . . Fourth year. . .

6 How many essays are required? of what length? on what kind of subject? First year. . . Second year. . . Third year. . . Fourth year. . .

7 Is the comment on the essays general or detailed? . . Is rewriting required? . . Are oral consultations held?

N. B. A corrected theme may be asked for as a part of the answer to this question.

8 Is grammar taught and reviewed? . . What textbook is used?

9 Are the requirements suggested by the Commission of Colleges in New England met? If not, what equivalent? . . What amount of time is given to this suggested reading? . . What is the classroom method in connection with (*a*) Texts for reading? (*b*) Texts for study and practice in composition?

Remarks:

LATIN

1 Number of recitation periods per week: First year. . . Second year. . . Third year. . . Fourth year. . .

2 Length of recitation periods

3 Textbooks used and authors studied: First year. . . Second year. . . Third year. . . Fourth year. . .

4 Amount read, reckoned in Teubner pages or "books": First year. . . Second year. . . Third year. . . Fourth year. . .

5 What provision is made for the systematic study of grammar after the first year? . . . Second year. . . Third year. . . Fourth year. . .

6 Amount of time given to sight reading and authors used for this purpose: Second year. . . Third year. . . Fourth year. . .
7 Average time per week given to writing Latin: First year. . . Second year. . . Third year. . . Fourth year. . .
8 To what extent is practice given in the translation of connected English prose into Latin?
9 What training is given in the rhythmical reading of Latin poetry?
10 Is the reading aloud of the daily lesson, either by the pupils or to them, a constant practice? If not, how much is done?

Remarks:

GREEK

1 Number of recitation periods per week: First year. . . Second year. . . Third year. . .
2 Length of recitation periods
3 Textbooks used and authors studied: First year. . . Second year. . . Third year. . .
4 Amount read, reckoned in Teubner pages or "books": First year. . . Second year. . . Third year. . .
5 What provision is made for the systematic study of grammar after the first year? . . Second year. . . Third year. . .
6 Amount of time given to sight reading, and authors used for this purpose: Second year. . . Third year. . .
7 Average time per week given to writing Greek: Second year. . . Textbook. . . Third year. . . Textbook. . .
8 To what extent is practice given in the translation of connected English prose into Greek?
9 What training is given in the rhythmical reading of Greek poetry?
10 Is the reading aloud of the daily lesson, either by the pupils or to them, a constant practice? If not, how much is done?

Remarks:

FRENCH

1 Number of weeks devoted to French: First year. . . Second year. . . Third year. . .
2 Number of recitation periods per week: First year. . . Second year. . . Third year. . .
3 What is the length of each period?
4 What grammar used and how much of it studied?
5 How much (in duodecimo pages) prepared translation into English? How much (in duodecimo pages) sight translation into English?
6 How much time devoted to pronunciation and the reading aloud of French?
7 How much time devoted to oral rendering into French of sentences based upon a text read?
8 What textbook used as basis for French composition, and how much ground covered in it?
9 How much time devoted to written translations into French?
10 Are connected passages set, based upon carefully studied models?
11 How much time devoted to written exercises in French dictation?

Remarks:

GERMAN

1 Number of weeks devoted to German: First year. . . Second year. . . Third year. . .

2 Number of recitation periods per week: First year. . . Second year. . . Third year. . .

3 What is the length of each period?

4 What grammar used and how much of it studied?

5 How much (in duodecimo pages) prepared translation into English? How much (in duodecimo pages) sight translation into English?

6 How much time devoted to pronunciation and the reading aloud of German?

7 How much time devoted to oral rendering into German of sentences based upon a text read?

8 What textbook used as basis for German composition, and how much ground covered in it?

9 How much time devoted to written translations into German?

10 Are connected passages set, based upon carefully studied models?

11 How much time devoted to written exercises in German dictation?

Remarks:

HISTORY

1 Number of weeks given to history: Greek. . . Roman. . . English. . . American. . .

2 Number of periods per week: Greek. . . Roman. . . English. . . American. . .

3 Length of each period

4 Author and title of textbooks used: Greek. . . Roman. . . English. . . American. . .

5 Authorities used for additional reading: amount in each: i. e. number of pages, chapters, or parts of books: Greek. . . Roman. . . English. . . American. . .

6 What forms of written work: i. e. notes and digests of lectures and of works read, written recitations, comparisons, brief investigations? Greek. . . Roman. . . English. . . American. . .

7 Number of outline maps drawn: Greek. . . Roman. . . English. . . American. . .

8 Is definite instruction given in ancient geography? What textbook or atlas, if any, is used?

Remarks:

MATHEMATICS

1 Number of weeks in each year given to mathematics:

	No. of weeks	No. of periods per week	Branch
First year			
Second year			
Third year			
Fourth year			

2 Length of a recitation period

3 Textbooks used and amount covered in each of the following subjects: Plane geometry. . . Solid geometry. . . Plane trigonometry. . . Spherical trigonometry. . .

4 Is each student required to solve original propositions in geometry?
5 What textbooks are used in algebra?
6 Cross out in the following list the subjects not included in the course: The elements through quadratics. . . The theory of quadratics. . . Imaginary quantities. . . Binomial theorem. . . Ratio and proportion. . . Arithmetic and geometric progressions
7 Is a mathematical review required in the senior year?

CHEMISTRY

1 In which school years is chemistry taught?
2 Number of weeks in course
3 Number and length of periods given to recitation each week
4 Number and length of periods devoted to laboratory work each week
5 Textbooks used and portions covered by class
6 Laboratory manual used and portion covered
7 What books are used for reference and supplementary reading?
8 What is required of a pupil in preparing a laboratory notebook?
N. B. Specimen notebooks are required in answer to this question.

Remarks:

PHYSICS

1 In which school years is physics taught?
2 Number of weeks in course
3 Number and length of periods given to recitation each week
4 Number and length of periods devoted to laboratory work each week
5 Textbooks used, and portions covered by class
6 Laboratory manual used and portion covered
7 What books are used for reference and supplementary reading?
8 What is required of a pupil in preparing a laboratory notebook?
N. B. Specimen notebooks are required in answer to this question.

Remarks:

BOTANY

(Not accepted for admission)

1 In which school years is botany taught?
2 Number of weeks in course
3 Number and length of periods given to recitation each week
4 Number and length of periods devoted to laboratory work each week
5 Textbooks used and portions covered by class
6 (*a*) Laboratory manual used and portion covered. . . (*b*) If no laboratory guide be used, state what forms are studied and the character of the work done with each.
7 What books are used for reference and supplementary reading?
8 What is required of a pupil in preparing a laboratory notebook?
N. B. Specimen notebooks may be required in answer to this question.

ZOOLOGY

(Not accepted for admission after September 1904)

1 In which school years is zoology taught?
2 Number of weeks in course
3 Number and length of periods given to recitation each week
4 Number and length of periods devoted to laboratory work each week
5 Textbooks used and portions covered by class
6 (*a*) Laboratory manual used and portion covered. . . (*b*) If no laboratory guide be used, state what forms are studied and the character of the work done with each.
7 What books are used for reference and supplementary reading?
8 What is required of a pupil in preparing a laboratory notebook
N. B. Specimen notebooks may be required in answer to this question.

ASTRONOMY

(Not accepted for admission)

1 In which school years is astronomy taught?
2 Number of weeks devoted to subject
3 Number of recitation periods per week and length of each period
4 Textbook used and portion of text covered by course
5 Books used for reference or supplementary reading
6 Observations of sky required, such as identification of leading star groups
Remarks:

PHYSIOGRAPHY

(Not accepted for admission)

1 In which school years is physiography taught?
2 Number of weeks devoted to subject
3 Number of recitation periods per week and length of each period
4 Textbook used and portion of text covered by course
5 Books used for reference or supplementary reading
6 Experiments and observations
Remarks:

What laboratory equipment for the teaching of the following sciences has the school?

1 Chemistry
2 Physics
3 Botany
(Not accepted for admission)
4 Zoology
(Not accepted for admission after September 1904)
5 Astronomy
(Not accepted for admission)
6 Physiography
(Not accepted for admission)

The Wellesley College calendar tells us: "With the formation of the New England College Entrance Certificate Board, all certificate privileges granted by the college will expire by limitation on Jan. 1, 1904, and every third year thereafter." The preparatory school therefore must answer these voluminous blank questions every three years. The principal of such school must also "present upon a blank form furnished by the college a certificate of scholarship for each candidate." Preparing students for examination is easier than filling out this blank. The formation of this College Entrance Certificate Board to control the preparatory schools is in itself an evidence that the certificate system has not been working with entire satisfaction. Obviously there has been a too exuberant growth of this certificate tree, and the New England colleges are united in an attempt to prune it. Let us hope that the pruning will be so complete and thorough that only the stump will remain, and that this will ere long be plucked up by the roots.

Allow me just here to quote from a letter written under date of Mar. 13, 1903, from Providence R. I., to a New York paper, presumably by a professor in Brown University. This letter points out the fact that the school mind is querying as to the future of the system. The writer says:

> It is not very important that this or that faculty should feel that its dignity has been injured by sharp comments, or that this or that teacher should be unhappy because his pupils have failed to pass tests set by a college examiner; but it is of vital importance to know whether the certificate system has improved the preparation for college. I say "improved," because, while its opponents assert it to be a mere crutch for the lame and the lazy, its supporters assert its superiority to any other conceivable method. In discussing this point we have heard, *ad nauseam*, from both teachers and professors. Why not consult the only other persons concerned—the students? The testimony of a boy in a preparatory school will inevitably be that it is a fine thing to get out of examinations. The same boy in college often sings a different tune. So far as I have heard the college student speak on this point, he usually says: "The certificate system is well enough for the good student, but he could pass the examinations and get in anyway. For the man of shaky preparation or abili-

ties it is a poor thing, because he often comes to college at great expense, struggles for three months or more with courses he isn't fit for, and then is sent away."

We can easily understand why certificates are popular with the preparatory student, but the question of vital importance to him is: "How does the knowledge that he is to enter college by certificate affect his work? Does it make him more careful, accurate and thorough?" I mean of course the student of average character and ability. As noted above, the young man of high scholarship does well enough in either way. Can any teacher of experience doubt that there is a most decided tendency to slight work in a student who knows that he is never to be subjected to the examination test? This is human and not surprising, but there must of necessity be a loss, the effects of which will be felt all the way through college, or cause absolute failure.

A significant letter by Arthur Gilman says:

> As regent of Radcliffe College I was often asked to permit candidates to enter on certificate. It is unnecessary to say that it was impossible . . . To the question why the candidate wished to enter on certificate, the usual reply was "because it is easier"—a reason that I could easily show was not worthy of a really earnest student.
>
> I once asked a teacher of high rank about two boys who had been sent to college by his institution, second to none in America. "John took examination and entered with credit," he said. He went to a college that recognized no certificates. "Will—well, he was the sort of boy that you could give a certificate to, and we sent him to ——— College," one that receives without examination.

While students need to feel that work must be done so well that it will stand the test of time, a question of great importance to the preparatory school itself is, "What is the effect of the certificate system on the work of the teacher?" With the best teachers doubtless it makes no difference at all, yet most teachers, like the students, are human, and are sometimes tempted to do careless work. The knowledge that a severe test will soon be applied in the form of an examination, and a natural pride in the success of his students will operate powerfully against such temptation.

It is also to be said that the two questions are vitally interwoven. Whatever incites the student to good work tends to inspire the teacher, and his greatest power lies in inspiration. On the other hand, it goes without saying that whatever acts as an incentive to the teacher reacts forcibly on the student for his benefit. It appears to me therefore that the interests of both schools and students are but poorly served by the certificate system.

Let me cite one more instance which illustrates my point, though it does not relate to a case of a student entering college. A young lady from a high school entered a more advanced school, and was assigned to a certain class in Latin. She held a Regents diploma which covered two years' work in Latin. One day she asked her teacher what he meant by conditional sentences and where she could find them described in her Latin grammar. On being asked what Latin grammar she had studied in high school, she replied, Smiley and Storke's. When asked again, " Did you use no other? " She replied, " No." Now this student was bright and in earnest and probably above the average in ability. Being a sensible person, she asked how she could remedy her deficiency, and at once went to work to do so.

I am tempted to digress from my theme just here to mention the mischievous tendency of these " first books " in the languages. An agent of one of the large publishing houses, in reply to a criticism of mine with which he fully agreed, told me that these books were designed for poor teachers. Certain it is that they are very fragmentary, and that many students are content with what little grammar they find in them, and so never become familiar with the real grammar as they ought.

It seems indeed significant that the oldest and most prominent of our universities, Harvard, Yale and others, have steadfastly refused to have anything to do with the certificate system, and that this does not seem to have affected at all unfavorably the number applying for admission. It will hardly be claimed by any that those who direct the policy of these great institutions are narrow-minded or unprogressive. Is it not then fair to suppose that, if admission by certificate had proved to be better than by examination, they would have adopted it?

In reply to a letter of inquiry, Dean Briggs of Harvard University says:

> I have always supposed that Harvard adheres to examination because it believes that examinations keep up the standard, and that certificates tend to lower the standard. I know that a good many officers of colleges which admit by certificate feel the danger, and would like to get back to examinations if they felt that their colleges could afford it. I know also that some schools prefer to let colleges test their pupils by examination rather than be subjected to the kind of pressure to which they would be subjected if everything depended on their certificates.

While he is careful to say that he writes only on his own authority, yet few can doubt that the wish to keep up the standard is substantially the reason for Harvard's adherence to the examination system.

Dean Wright of the Yale College faculty writes:

> Our faculty has never been inclined to admit candidates to the freshman class on certificate unless they have come from other colleges. We have admitted a few such candidates on certificate for three or four years, but not with altogether satisfactory results. The men so admitted do not average as well as those admitted by examination from preparatory schools, and it is certain that several of them could not have passed our examination for admission.

He also says:

> Some of the colleges that admit by certificate say that this method tends to lower the standard of preparation. We aim to treat all schools exactly alike. It is a very difficult problem to decide satisfactorily and justly from what school certificates are to be accepted. We think we are more likely to be just in our treatment of all schools by examining all candidates than by accepting certificates from some schools and rejecting the certificates of others on the ground of work done by their graduates after entering college.

While the object of the entrance examination is to test the ability and training of a candidate fairly and accurately, another should also be constantly kept in view, viz, to furnish guidance and inspiration to the secondary schools. That there has been a serious failure just here has been due to a very faulty administration of the examination system. The great diversity of standards, even since the practical disappearance of the oral examination, has made it very difficult for the schools to set before themselves clear and definite ideals of instruction. Technical, pedantic and absurd questions have been given, and sometimes an examination as a whole has been charged justly with being scrappy and ill balanced. Doubtless this confusion of standards contributed much to the bringing in of the certificate system, which is now proving a delusion and a snare to both colleges and preparatory schools.

Teachers and students should understand in advance that candidates for college must show a reasonable knowledge in all the leading divisions of a given subject, in other words, the knowledge of that subject should be comprehensive. They also have a right to know that the standard will have a fair degree of uniformity from year to year.

The first serious attempt to solve this most important problem was made three years ago by the formation of the College Entrance Examination Board. Three examinations have now been held, and three very full and complete reports by the secretary of the board have been published in the *Educational Review.* These reports show steady improvement and increasing success in several important particulars. In June 1901, 973 candidates were examined; 1362 in June 1902; and 1620 in June of this year. The membership of the board included 15 institutions of the Middle States and Maryland in 1901. Seven were added in 1902, including three from New England, viz, the Massachusetts Institute of Technology, Wellesley College and Mt Holyoke College. Two have been added this year, so that the board now includes 24 institutions.

In 1901 only three of the 15 held no separate examinations of their own in June, viz, Columbia University, Barnard College and New York University, all in New York city. In 1902 this number was increased to six, and in 1903, to 10. Cornell University and Vassar College are among them. These in June use only the examinations provided by the board, though some of them also accept certificates. It is worthy of note, however, that the Case School of Applied Science, in Cleveland O., when it joined the board this year, announced that it had discontinued its system of admission by certificate and should admit by examination only. It is also significant that a number of important private schools have adopted the board examinations as the basis for graduation.

To save candidates the expense of long journeys, the examinations were held at 134 different points this year. Nearly all colleges and universities in the United States accepted their results the first year in place of their own entrance requirements, and the second year, so far as known, Harvard was the only exception.

No one will assert that these examinations have eliminated all the faults of the examinations of the separate colleges, though every effort to that end has been made. It is easy to point out several. Some of the papers have been too difficult. The percentage of papers in Latin grammar which received a rating of 60% or more in 1901 was about 39, in 1902 nearly 60, and in 1903 only about 28. This is a poorer showing than in any other Latin subject, and very uneven. The systematic study of Latin grammar has been too much neglected in the schools, no doubt of that, and the excessive use of first Latin books instead of grammars is doubtless responsible for some of this failure, but this is not sufficient to explain these widely varying figures. Greek grammar is no better taught in the schools, yet the results in the board reports appear quite different.

Notwithstanding a few such faults, the tables as prepared by the secretary of the board show on the whole a degree of uniformity in results more striking than one could expect.

The schools have a right to expect that the colleges which have membership in this board and accept its examinations in place of their own, will treat them fairly. Certainly, the opposite feeling will in no small degree, hinder the success of the board's work. It seems right to mention a case in point. A candidate took the board examinations and secured a rating of 60% or more in all Latin subjects except Latin grammar. She applied for admission to Bryn Mawr College, was received, but was conditioned in Latin prose composition, notwithstanding she had passed both the elementary and advanced papers at a rating higher than 60%. Objection was made by a former teacher of this candidate, but the condition was insisted on, on the ground that, in the separate examination given by the college, with which the board had nothing to do, grammar was included with composition in one paper.` Attention was called to the fact that the average of the three ratings, viz those for grammar, elementary composition and advanced composition, was less than one unit below their passing mark of 60, but they declined to remove the condition, on the ground that it would be discourteous to the board, apparently not seeing that, if this was a discourtesy, it was a double discourtesy to reject two marks which were above the 60% standard, and forgetting or not knowing that the board never had any passing mark of its own, recorded results only and desired and expected each college to fix its own standard, or passing mark. The results which followed in this case were not pleasant. The final decision was not made known till after their September examination, when the condition might have been passed off. The candidate had planned to take Latin as her major course for freshman year, but, when too late, was informed that the college had a rule that no one who had a condition in any subject, could take that subject the first year in college. They would allow no examination to be given till Thanksgiving, when she took and passed the subject easily. It is difficult to invent a theory to explain action so grossly unfair as this, except that the colleges and secondary schools are natural enemies which meet on the battlefield every summer; or that some, making a tremendous effort to stand very straight, actually lean over backward.

I do not mention this case because I believe it a representative one at any other college. It may show, however, that there are some needless obstacles to the much desired success of the College Entrance Board, which the colleges have power to take out of the way.

Admitting that much remains to be accomplished, it is yet certain that experience with the board examinations during these three years has made a decided advance toward securing community of interest and community of effort by setting up reasonable and well defined standards of teaching and of testing.

Says Prin. E. J. Goodwin, in the December *Educational Review*:

> For the first time it has become possible in some localities to maintain the integrity of class organization, while preparing candidates for admission to several different colleges. This has greatly simplified the task and reduced the cost of instruction. It has done more than this. It has vitally strengthened the instruction. The syllabuses used by the board, together with the interpretations of them in the questions set for examination, have made it possible to instruct whole classes along definite lines and towards clearly defined ends. The gain in this is enormous. Instead of breaking up a class into fragments of two or three, and endeavoring to vary the instruction to suit the idiosyncrasies of the colleges to which the several groups seek admission, it is now possible to plan the work of instruction with care and skill and to execute it swiftly and vigorously.

Prof. Charles E. Bennett—I have been deeply interested in the remarks of Mr Seely. I think the association owes him gratitude for the painstaking way in which he has gone into the subject set down for discussion. I am happy to say that in his general attitude on the subject, I fully agree with him. In the course of the last 20 years, I have been connected with four large American universities, in all of which the certificate system has been used. These universities, I think I may say, are representative, because their enrolment today is 10,000 students in the aggregate. In two of these universities I was secretary of the committee on admission by certificate, so that I secured several years of experience in connection with the actual administration of the admission of students on certificate, and I am glad to say that in no one of these four universities were a majority of the faculty satisfied with it. In the two western universities it had been regarded as a temporary necessity. They were both in far western states, where the university was comparatively young. In one of them there are 2500 students registered today. There were only five in the senior class in 1884. It was felt that a public institution like a state university was bound to make its relations with the public school system as close as possible; and in the early days it seemed that there was no other practical method for securing the admission of students to the university so good as admission by certificate. And yet, I repeat it, the arrangement was looked on as temporary. The faculty were almost a unit in their objections to it and their dissatisfaction with it, and were eagerly looking forward to the time when admission by examination might become established.

As secretary of the committee on admission in both of these two western universities I learned by experience how difficult it is to maintain a proper standard in the schools. The university often is so anxious for a large enrolment that it is unwilling to put the proper pressure on the school. Many a time have I seen reluctance on the part of the faculty and college presidents to insist that a school should do the work which it had undertaken to do in order to merit the privileges of the certificate system; and consequently, through fear of some influential person who had not complied strictly with the requirements, the school was not maintained at the proper standard.

In the two eastern universities with which I was connected, I have also been on the committee on admission by certificate, though I have not held the position of secretary. I have not been so intimately connected with the work, and yet both at Brown University and at Cornell University I have noted a large number of influential members of the faculty dissatisfied with the results that they were realizing on admission by certificate and looking forward to the time when admission should be only by examination. I am sure that many students are annually admitted to Cornell University and take up the subject of Latin, who ought not to be admitted in that subject. We usually have at the beginning of the freshman year a class which ranges from 90 to 120. We classify on the basis of an examination which is exceedingly simple, a passage from Caesar being set for translation, with a few incidental questions on grammar, and there are actually many students who get only 5%, 7%, 12%. I suppose out of a class of 100, 20 would get less than 20%. I know very well that students forget some things; but I can not believe that any properly prepared student would be unable to get more than 20% in a simple Caesar examination, if the requisite amount of knowledge of Latin were in the student's mind. I feel very sure that representative teachers in the secondary school work are looking forward to the time, just as college teachers are looking forward to the time, when admission to college will be by examination only. That is by no means a perfect method; but, comparing the two methods with each other, it seems to me that admission by examination is far and away the better of the two.

I had intended in accordance with the invitation and expressed wish of your president, to confine my remarks chiefly to the work of the College Entrance Board, with which as examiner in Latin I have been connected for the past four years. Professor Seely did not call attention to the purpose in the minds of those who established the College Entrance Board. This purpose was to secure unity of work in the schools, so that, as Mr Goodwin states in his admirable article in the December *Educational Review,* it should be possible to prepare students simultaneously for different colleges, and so that it should be possible for students to pursue their work without serious embarrassment and loss of time. I am glad to say that Mr Goodwin, as well as some others, feels that that has been in some measure accomplished by the work of the College Entrance Board even in the short space of three years that it has been in operation. The intention, then, in the establishment of the College Entrance Board, was to promote unity just as far as possible in the secondary schools. It was not intended to establish a board before which any one could go and be examined in any subject and get credit for it. The purpose was rather by means of examinations to suggest as nearly as possible an ideal course of study, by laying emphasis on those things which were recognized by all as of chief importance. As to Latin in particular, the College Entrance Board laid down three or four things which it wished to emphasize as essential, grammar and composition, which it labeled A, Caesar, which it marked B, Cicero C, and Virgil D, etc.; and, while recognizing certain other things, it put them down as L, M, N, hoping it would be understood that these were regarded as of less importance. I may say that I think it was a mistake for the board to recognize so many subjects as it has done in Latin, and I am glad to add that very few take examinations in subjects under the lower letters of the alphabet.

One thing we specially try to avoid in preparing the examination papers—I speak now of the examiners themselves and not of the board. We try to avoid preparing papers with special reference to the ideas of departments of Latin in colleges. It would have been a very easy thing for Professor Wescott, of Princeton, and myself to devise an examination in Latin specially intended to develop students for our own classes and for other professors in Latin. If there is anything we have conscientiously endeavored to avoid, it is just that. We have believed that Latin is a most valuable study for any student preparing for college, whether he intends to study it in college or not, and we have endeavored to make the papers with this in view. One thing that we have tried to promote in the preparation of the Latin papers has been a knowledge of the subject-matter of the authors read; that is we have asked in connection with Caesar, and in connection with Cicero quite a number of questions on the content of Caesar's *Gallic War* and of Cicero's *Orations*. I am aware that these questions have excited some adverse criticism. At the Thanksgiving conference of the Association of Colleges and Preparatory Schools of the Middle States and Maryland there was a session devoted to the consideration of the Latin papers set by the College Entrance Board, and the criticism was made that it was unfair to ask students examined in Çaesar to state, for instance, the years of Caesar's Gallic campaigns. I am sure that the examiners in Latin and the Board of Revision, which is still another body, all believe firmly in the great importance of a knowledge of the subject-matter of the Latin authors read, as well as of a knowledge of the Latin language. I think it has long been the weakness of classical study both in school and college that students devoted themselves too exclusively to the text, satisfying themselves if they could get good sense out of it. As I endeavored to emphasize in an article contributed some ten years ago to the *School Review*, there has been too little of synthetic work in our Latin teaching—too little of putting together. This is natural enough in a language where analysis is so important; and yet I believe it to be a primary error. At Cornell one of the questions which I once asked on an examination in Lucretius was, What portion of Lucretius has made an impression on you, as a result of its content or as a result of the form in which the author has expressed his thought?; and I remember one student answered the question in this way, "Nothing has made any impression on me at all." He said he had been reading it just for the Latin. I knew what he meant very well: he had been reading in order to construe. Such an attitude is a more serious thing in college than in secondary work, because in college we pay more attention naturally to the content than we do to the language. It is a defect, however, at any stage; and I hope that the teachers in this association will persuade themselves that it is all important to give serious attention to the content of the authors read as well as to the analysis of their diction.

As regards the mode of procedure in the preparation of the papers, I should like to assure the association that the greatest pains are taken. There is a board of three examiners in Latin and in the other subjects also, and the method in Latin will stand for history or French or Greek as well. The three examiners prepare questions and submit them to one another, subjecting them to careful discussion. They are then forwarded to the board, which is a body of 10 members, five representatives of the colleges and five representatives of the secondary schools. The questions are examined by the board, and after some weeks there is a joint meeting. This is the so called Board of Revision, consisting of the chief examiners in the different subjects, sitting with members of the board, and making a body of perhaps 20 educators. Before that Board of Revision all of these papers are submitted to the most searching examination and discussion. I remember that we have spent as much as 10 hours at one of these sessions, going over, with great pains and care, the papers which had already been worked out. I cite this simply in order that you may have confidence that the examiners and the board are making every effort to be fair in the preparation of examination papers. I may say as regards the board, and specially as regards the Latin examiners, that we invite criticism from every quarter. I have alluded to the conference held at Columbia at the time of the Thanksgiving recess. Professor Lodge read a paper there in which he indulged in some criticisms, many of the points admirably taken; and I was called on to speak, and I remember that Professor Carter, of Princeton, who was in the chair, introduced me as the examiner who had come down there for the purpose either of being convinced or of convincing. I simply came to get more light. I recognize the defects in these Latin papers; I presume there will always be defects in any examination that the board sets. I came down to that conference as I have come here to get light, in order to be able to make the papers better in the future. And so I invite, and I am sure the other examiners and the board will join with me in inviting, criticisms of any kind on these papers, in order that they may be improved and made worthy of the great movement with which they are connected.

There are some things, however, that the examiners can not do. There are some things that even the board can not do, till formal action is taken changing the conditions and the requirements for admission which were laid down some years ago. You will recall possibly that some six years ago the American Philological Association drew up tentative schemes of study in Greek and Latin with the greatest care. Postcards were sent to 3000 teachers in the United States; and, on the basis of the replies received, tentative schemes of study for secondary schools in Greek and Latin were drawn up. The College Entrance Board, in determining its requirements for admission, followed as far as possible the recommendations of the American Philological Association. It was thought that recommendations which had been indorsed by such a responsible body as that, drawing its material in the way it did from representative teachers all over the land, might very well be regarded as of great weight. And so, when Professor Lodge at the Columbia conference objected to any examination in Latin grammar at all, I had to say that that was a matter which did not lie within the power of the board at the present time. So, when the proposition was made that, in connection with the examination on prescribed work in Caesar or in Cicero or in Virgil's *Aeneid,* there should also be a sight examination in Caesar and Cicero and Virgil's *Aeneid,* I was obliged to state that under the present requirements of the board that would be impossible; that they had laid down an examination on six books of Virgil's *Aeneid* and devoted scant time to it; that they had laid down an examination in four books of Caesar's *Commentaries,* allowing only sufficient time for that.

So I beg you, in criticizing the examinations of the board, to bear in mind the limitations under which the examiners who prepare these examinations are working. They are endeavoring to make examinations which shall be fair and which shall be reasonable and adequate. They invite your cooperation in achieving this ideal.

Prin. O. W. Wood—Through the courtesy of Professor Seely, I had glanced over this paper prior to its delivery, and I shall confine my remarks, in so far as the paper relates to us, along lines concerning teachers in the public schools of New York State. We know that upward of 90%, or perhaps 95%, of the schools represented here are taking Regents examinations; and, if Professor Seely would include Regents examinations as examinations for entrance to college, I would indorse nearly every word he has said. If he would not regard the Regents certificate for entrance to college as an acceptable certificate, I would assent to what he said only in part. He tells us in the opening that modern examinations are designed to test not only the memory but specially the power of independent thought and reasoning. I do not believe that the power of independent thought and reasoning is tested by an examination for entrance to college in which the time to answer from five to seven questions is limited to 45 minutes. I do not believe there has been much thought or reasoning in the papers that have admitted students to Harvard or Yale or any other college that requires a student to do work after that fashion. I believe that our own system of examinations in the State of New York gives greater opportunity for thought and reasoning than the college examinations. Perhaps this College Entrance Board in time may bring it about, so that the student will have time for the examination and will consequently be himself. The personnel of the board of examiners of the Regents office must be considered. First, they are all graduates of representative universities. One received his practical training at Canajoharie, another at Watertown, a third at Palmyra, a fourth at Owego, a fifth as a college president, a sixth as a college teacher, a seventh as a normal school instructor, and so on throughout the list. They are practical secondary school men, each and every one. The examinations are made up in a scholarly way. You and I have a chance to criticize each and every examination, and not only do we have a chance, but it is our duty. They are responsible to us, for they are our representatives; and, if an examination does not meet your approval or my approval, then it must be altered. The examination occupies a period of three hours. The child is absolutely undisturbed during the Regents examination. No person enters the room, as you and I know; and, if the question of reasoning and thought is to be considered, I argue that our Regents examinations are far better than the examinations that are usually given for entrance to college.

Secondly, Dr Seely contends that the certificate plan does not permit closer relationship between the college and the secondary school. He says, "I deny that better scholarship is thereby promoted in the secondary school." I can not assent to that. The certificate does bring the college and the secondary school more closely together. I have an interest in a pupil in Yale or Harvard, because I put myself on record that he was prepared to do the work. My reputation is at stake, and I believe that I shall watch that young man or young woman more closely than I should if the student had taken the examinations. I believe it does bring the college nearer to the school.

As regards the certificate blanks, I think we all regret the length of the one Professor Seely read to us, but I think that such are the exception rather than the rule.

Again, he said that a student does better work when he knows that he must pass an examination before he can enter college. By deductive reasoning, if that be the case, then a student who is about to graduate from a high school will do better and more careful and accurate work if he knows that he must take an examination covering his entire high school course at the last minute; and a student about to graduate from college will do better work if he be compelled to take an examination covering his four years of work before he receives his sheepskin. I do not believe that. I do not believe that American schools are going back to the plan of giving examinations that will cover the entire four years' work either in college or in the secondary school. You and I know the answers that have been given time and again by the boy in the senior class, perhaps a Latin student, when he was sitting in the mathematical room. His Latin had gone from him. And yet the boy goes to college, many times amid strange surroundings, sits down and rushes through his examinations in 45 minutes, an hour or an hour and a half, and is expected to show considerable knowledge of the subject. I do not believe he can do his best under those conditions. His daily recitations usually bring out more of the real student that is in him.

Again, in regard to the statement by Dean Briggs of Harvard, that some schools prefer to fit their students for examination rather than be subjected to the kind of pressure to which they would be subjected if everything depended on the certificate. That has no bearing whatsoever so far as our Regents schools are concerned. You and I are never subjected to any pressure, if a child fails to pass his examinations, and we do our work faithfully. I admit that in some schools, where the teacher makes up his own examinations, pressure may be brought to bear, but I will not admit it as regards our own Regents schools.

Again, in regard to what Dean Wright of Yale says: "A few have entered from other colleges, and their work has not been altogether satisfactory, and the men have not averaged as well as those admitted by examination from preparatory schools." That proves nothing. Do more men leave college because they are dissatisfied with their institution than because the institution is dissatisfied with them? I am positive that the boys who leave college and change from one institution to another are not our representative college students; and in closing I shall simply say that better work is done in schools where the examination occurs at the close of the term or the close of the year. And that the certificate plan, if you regard the Regents examinations and credentials as certificates, tends to keep the schools and colleges and other institutions more closely connected.

Prof. Warrington Somers—I want to say that I am in hearty sympathy with the paper presented by Professor Seely and the remarks of Professor Bennett. I believe that admission to college by certificate is one of the great evils of the day and a growing evil. I have no interest in the College Entrance Board examinations; in fact, I am not very familiar with them. Neither do we take the Regents examinations in our school. About half of our students who go to college take the examinations for the colleges where there is no admission by certificate; the other half are admitted to other colleges on certificate; so that we have a chance to compare the two methods. I think that I see very plainly in our school some of the evils that were presented by Professor Seely. That is, a boy early in his course will make up his mind about what college he will attend, and, if he decides on a college that admits by certificate, he will ease up in his work. He will not only show this to be the case by his attitude in his class, but he will talk that way; and I believe it is a great injury to the student and to the school that adopts that method, and I should be very glad to see the whole system of admission by certificate entirely abolished. I do not know that I should be in favor of the College Board examinations, but I should favor some method by which students could take their preliminary work in the third year of the high school and then take the final work the last year and so avoid the difficulty presented by the last speaker when he said that it was hard for the student to take the whole four years' work at one examination. I certainly hope that the certificate system will be abolished.

Sup't F. D. Boynton—I am very much interested in this question, since, during the past two years, my school has sent 142 students to various colleges. I am in favor of entrance by examination if by examination we include the Regents examination as well as the College Entrance Board examinations. It would seem that consistency requires the acceptance of both, or the rejection of both. Between these two organizations, there is a striking similarity. Each has a central office; each prepares a set of questions to be given simultaneously at different places; these questions are revised and criticized by an editorial board; they are similarly safeguarded in the printing and handling; they are sent in sealed packages by express or registered mail to persons designated by the central office to receive them and to conduct the examinations in accordance with a set of rules prepared by the central office; the answers in both cases are returned to the home office, where they are reviewed by a canvassing board with final authority. I fail to see how any one conversant with the methods of these two boards can consistently accept the one and reject the other.

The great virtue of the work of the College Entrance Board, as it appears to me, is in the fact that it is an organized attempt to secure a certificate by examinations that will be recognized by all colleges in all states, thereby putting an end to much of the useless and apparently senseless difficulty which a student meets in his attempt to gain admission to many of our colleges. But this is just what the boys and girls of the Empire State have been enjoying for a generation; and, so far as we are concerned, the work of the board is largely a duplication of effort.

There is one great difference between these two examination bodies. The College Entrance Board is essentially aristocratic, since it deals only with that select minority which has decided on entering college. The Regents are intensely democratic, since they reach down to the boy and girl in the grammar grades, and, by a system of carefully graded certificates that may be secured by easy stages extending over a period of years, encourage the pupil to go on to higher attainments. The record of the tremendous increase in high schools and in the attendance on secondary instruction in this State is unmistakable evidence of their success.

Concerning the pressure being brought by parents to bear on principals to grant certificates to pupils who have not earned them, I have this to say, that those of us who work under the Regents or the Examination Board do not meet this experience. If the gentleman from Auburn worked under either, he would not need to argue for entrance to college by examination in order to escape this pressure. I should not hesitate for a moment, if the time should ever come when the Ithaca Board of Education would reject the Regents examinations, to urge the adoption of the examinations set by the College Board. Our pupils are entitled to the unquestioned benefits arising from these great systems.

In addition to encouraging a larger number to continued effort, the Regents' system gives those who are to enter college a better chance for making their college entrance than does the College Entrance Board, since the Regents give them a much longer time with many more opportunities, thereby relieving the strain incident on any examination or important work. I am most heartily in favor of entrance by examination, providing that the examinations set by the Regents are included, and the certificates thus earned are accepted by the colleges as now. Certain it is that we should avoid any further attempt at duplication of effort or the raising of any additional barriers to the progress of the work of the schools of the State.

Prin. A. R. Brubacher—I have seen the certificate system in operation through experience as a teacher in private schools and in the public schools. There is no doubt in my mind, after working under both systems, that admission by certificate tends to lower the grade of the students' work. And I believe by accepting certificates a college attracts an inferior class of students. It is usually the poor student who goes to a college where his certificate is accepted, while the bright boys take the examination. But the certificate system is better for women's colleges than for men's colleges. Oftentimes the parents of girls object to their taking the examinations for reasons of health. They desire to avoid the nervous strain. For that reason, some of my pupils have gone to Mt Holyoke and Smith in preference to Bryn Mawr. There is an element of truth to be considered there, that girls should perhaps not be subjected to a severe examination as a test for entrance to college. And it seems to me that the abuse of the certificate system lies in the women's colleges. The demands of those women's colleges are full of idiosyncrasies. I have in mind a high school class of which 10 girls entered college. Two of those girls, going to a certain New England college, were among the poorest students that the high school turned out that year. They were on the ragged edge of failure in the high school. The college accepted partial certificates, and its own examination was passed in other subjects. When they got into college, they necessarily did poor work, and the college raised objections to these pupils, though it had accepted them partially by examinations of its own. It did not stop to think that no school can do brilliant work with dull pupils. The fact did not occur to the college that at the end of the first year it should have known that the high school had done fair work with those pupils; but it demanded the same brilliant results from the dull pupils as from the bright ones, and it blames the high school for not getting brilliant results. Now that is manifestly unjust to the high school.

Regarding examinations, I believe a chief source of weakness lies in the grading of the examination papers. I have been so placed that I could observe the reading of entrance papers at a certain New England university; and my experience is that papers are not graded with the care with which they should be graded. I believe that the Regents system of giving the principal and the teacher a voice in the grading of the papers is eminently fair and just. The young man who hands in a paper at Yale or Harvard hands it to a man who knows nothing about his personality, to a man who does not know the pupil, who knows nothing but the cold page, and who is not nearly so well qualified to judge of the paper as the teacher of that boy. By the Regents' system the teacher is given a voice in the matter, and the Regents examiner is guided to some extent by that voice. I believe that the College Entrance Examination Board will be weak or strong in so far as they take cognizance of that fact, and adopt the method of reading the papers carefully, of getting at the pupil's personality through his teacher, taking plenty of time to grade the papers as accurately as if they were the teachers of those boys and girls. I know that some universities, notably Harvard, are making progress in that direction; but in others the grading is still very slipshod. It is done by young men, graduate students or instructors, who are not careful to grade the papers closely and do not grade them accurately. That I believe is the weakness of the examination system. It often fails to detect mental power and fitness through failure to analyze small errors. But, on the whole, I am heartily in favor of doing away with the certificate system except in the girls' colleges, and of adopting the examination system.

Prin. Benson Howard Roberts—My experience obliges me to dissent entirely from two statements of the last speaker. The first is to the effect that the bright young man prefers to take the examination and does not care for the certificate. I have had the pleasure of seeing quite a number of bright young men enter college on certificate, very glad that they were saved the extra work of a college entrance examination right on the heels of the stress of graduation from the high school. I have been pleased to see them take very creditable rank in college in spite of the fact that they entered on certificate.

I must also dissent, in my experience, from the statement that the certificate plan tends to lower the grade of work in the secondary school. Of course, if the principal feels under moral obligation to grant a certificate to any student who has lingered along for four or five years in an institution, that is one question. If, however, he will grant a certificate only to the student who has done honest work, that is another phase of the question. If we could have our college examinations, as we have our Regents examinations, scattered along through the four years of study, I think that would be fair, and I am pleased to see that such is the tendency of the College Entrance Board.. But this multiplication of examinations has its effect on the student. The papers that have been read are very largely from the standpoint of the institution. Are we not given to considering too much the institution and too little the student? We must bear in mind that the student does not exist for the institution, but the institution exists for the student, whether it is a high school or college. If you have no students, you will have no high school and no college. Not many years ago I spent a few weeks down in the Bahama islands, and, among other pleasant experiences, I got into a school of black children. The teacher was very ready to make an exhibit of what the school could do. So he got a row of these little children out on the seats in front and told them to sing, as they excelled in singing. But they did not sing exactly to suit him, and this schoolmaster flourished at them a strap about three or four feet long and began belaboring the children with this strap. Come to find out, the strap was made of cotton cloth and did not hurt very much. But, on the way back, the master of the plantation said, "That schoolmaster, he goin' to kill off all my children. I don't have nobody to grow me any corn or grow me any peas." He was afraid he would have no tenants in the years to come, if the school killed off his pupils in the course of discipline. Have the schools a right to burden the pupils with examinations that can rationally be omitted? Is there not danger of giving too much emphasis to the examination, to the detriment of the pupil? Should not the examination exist for the pupil rather than the pupil for the examination?

Prin. W. S. Steele—Some years ago, when I was teaching in a school in the southeastern part of New York State, I received one of these blanks from an eastern college and filled it out after much care and thought. As a result, it admitted one of our graduates on certificate. In the course of six months I received a letter saying: "Because of deficiency in scholarship, we are obliged to drop so and so from the course and withdraw the privilege of certification from your school." I replied that I was very sorry to receive the letter; but, as the young lady had been prepared under the instruction of a graduate of their own college, who had come to us very highly recommended from the institution itself, I had supposed that she was prepared as they wished their students to be prepared. I was a good deal younger then than I am now. Today I would not have certified that particular student. Last year I received another blank from another eastern college and, bearing in mind my former experience, I wrote them two or three letters. They sent back the certificate once or twice. Finally I wrote them to this effect: "The Olean High School has now some 15 or 20 very creditable representatives in various prominent universities of this country, and I for one will not fill out this blank further. I have answered all the questions I propose to answer; and, if you admit this student, she will have to enter on examination." As a result, she went somewhere else. Last year Cornell, because of its numbers, was obliged to make some good requirements with which I have no fault to find. One of them was the requirement as to 1st year English. They will not accept as a substitute advanced English and English composition. One of my pupils, one of the brightest pupils I have ever had, I tried to have excused from examination, but they would not do it. She entered that institution after taking the examination in English; and today I am informed that she has been admitted to the sophomore class in English.

The point I am attempting to make is that no method is perfect, but that, all things considered, wherever a Regents diploma can not be accepted, it seems much better to require an entrance examination.

Prof. John Greene—It seems to me that several who have spoken thus far have misunderstood the remarks to which they were replying. In attempting to compress our thought within necessary limits, we are all inclined to state simply the rule and ignore the exceptions. Forthwith an opponent pounces on one of these and undertakes by means of it triumphantly to overthrow the rule.

For example, I regretted to hear from one speaker the unqualified assertion that in his school *all* the best students go to colleges that prescribe entrance examinations, and *all* the poorer students to such as admit by certificate. It seems hardly credible that such a rule should be without exception anywhere. Certainly some of the most brilliant men I have ever known have entered our institution on certificate. But that does not prove that the certificate system is in itself a good thing. It simply proves that influences were brought to bear on those young men which induced them to go to Colgate. If they had been under other influences, they would have gone to Yale or Harvard or somewhere else.

We must not allow our judgment to be warped by extreme statements on either side. I think we all know enough of human nature to be sure that, if, when a boy is halfway through his preparatory course, he suddenly makes up his mind to go to an institution which will take the certificate of his school, he will at once feel comparatively easy in his mind as to the results. He has tested his powers already in that school and knows that he easily measures up to its requirements, and therefore he is perfectly satisfied to take things easily.

But, on the other hand, if he makes up his mind to go to a college that requires entrance examinations, that will *not* accept the certificate of his school, he knows that he has something before him. He must prepare as for an athletic contest, when he is to represent his school in some interscholastic event. In training for such a contest, he knows that he must do his very best, for he does not know what sort of a rival he will run up against. If it was only a contest between himself and some schoolmate that he knew he could beat easily, would it not make a difference with the vigor of his training? Just so it can not but make a difference with the vigor and faithfulness of his preparation, when he is sure that the diploma of the school will admit him to college. There are no doubt exceptional students whose passion for excellence is such as to lead them to do their best under all circumstances. But average human nature in boy or man is of another fiber. Surely, when teachers mark a lowering of standards on the part of pupils who have decided to enter college on certificate, and the students themselves declare that they propose to take it easy for the rest of their course, and all this agrees with what we know of human nature, it is of small use to urge theories or occasional exceptions on the other side.

EDUCATIONAL EXHIBIT AT THE ST LOUIS EXPOSITION

BY DELANCEY M. ELLIS, STATE DIRECTOR OF EDUCATION AT THE ST LOUIS EXPOSITION

In what respect will the educational exhibit at the forthcoming world's fair leave its imprint on the world? Given the place of honor in the official classification, housed in a magnificent building costing $350,000, supported and promoted by educators generally, encouraged by the leading states of the Union, as evidenced in liberal appropriations by the various Legislatures, it must have a mission, or the expenditures for its preparation become an extravagance for which there can be no excuse. Let us look backward. We are told that the Crystal Palace Exhibition in 1851 led to the establishment of the school for industrial art at the South Kensington Museum; that the introduction of manual training in the public schools and of shopwork in the technical schools of the United States was the direct result of the educational exhibit at the Centennial Exposition in 1876; that the educational exhibit at the Paris Exposition of 1878 brought about the reorganization of primary education in France; that the Chicago Exposition of 1893 gave wonderful impetus to the growth of manual training and industrial art instruction; that the French government arranged to send students annually to this country to investigate our industrial and commercial methods, as a result of the United States educational exhibit at the Paris Exposition of 1900.

Howard J. Rogers, chief of the department of education at St Louis, says: "It is not expected that every great exposition will mark a decided change in educational methods, even in one department; but the sum total of suggestive material taken from an exposition to every state and country in the world, and directly reflected on the growth and development of that country, is beyond calculation."

It seems to me that a message of the United States to the world goes out from its secondary schools, those schools in which the members of this association are doing a great work, schools which are yearly gaining in strength and numbers. The demands of Young America for a high school education today are hardly less insistent than were his demands for an elementary education 25 years ago. For many years this State has recognized more and more its obligations in this direction, and last year an appropriation of $100,000 was made by the Legislature, to be devoted to extending the privileges of an academic education to those who are otherwise deprived of it, owing to lack of facilities in the school districts in which they dwell. It is these same secondary schools that the European nations are watching closely, specially England, France and Germany. Nettled at the wonderful commercial and industrial progress of this country within the past 10 years, they seek its cause, and find it in the type of manhood which is solving our commercial problems and steadily increasing our industrial output. Many foreign educators, whose opinion is entitled to consideration, declare that the secondary schools of the United States play an important part in furnishing a type of young manhood superior to that found abroad. Gabriel Compayré, comparing the French and American systems in the *Revue Pédagogique*, says, "A larger number of American pupils continue their studies in the high schools, our [the French] superior primary schools not having yet succeeded in attracting the *clientèle* which they ought to have"; and again he says, "Nowhere else in the world is education so largely the business of everybody."

If the educational exhibit of the world's fair of 1904 stimulates the work of the secondary schools in Europe, leads to the establishment of new institutions and gradually instils into the mind of the people that it is a part of the duty of the government to provide a high school education for all who seek it, all the vast sums of money, the time and the labor which have been expended in its preparation will have been more than justified. So much for the value of the exhibit to the world at large. A few words as to its value to you and to me. I hope that every member of this association will find it possible to attend the St Louis Exposition, and will go there determined to study carefully the educational exhibits he finds, not only from our own State and country, but those from all the civilized nations of the world. I am sure he will find ideas of inestimable value which he can take home and put in practice in his own community. You may believe, as you sit in the confines of your private office, that, taking into consideration the money which the community annually expends in its maintenance, your own school system is as good as it can be under existing conditions; but I venture to say that there is not one of you who can not, if you seek for them, gather ideas in an educational exhibit of the wonderful scope of that at St Louis which will make it possible to administer your particular system or institution as efficiently, if not more so than at present at a less cost. In 1900 the Russian government chartered several special trains at a heavy expense and sent large delegations of principals and superintendents to the Paris Exposition, paying all expenses, and giving them ample opportunity to study the exhibits, brought from every nation in the world. Our own government has not yet reached that point. Perhaps it never will. Private initiative has been enormously developed in this country. Any man who believes that this exposition contains something of value to him will attend it at his own personal expense, if he can possibly afford to. The progressive American never hesitates to make an investment, the value of which is not to be questioned. The fact that his profits are not to be realized within the same month or within the same year does not deter him in the least. It is sufficient that benefit is bound to accrue sooner or later. On the other hand, you will all agree with me, I am sure, when I assert that no progressive

school board in our state would spend $150 to better ad
than to pay the expenses for the superintendent or hig
principal, or both, for a three weeks' stay at the St Loui
tion, affording them ample opportunity to study the ed
exhibit.

There never has been an educational exhibit which
to approach that which is now in course of preparati
are 156,670 square feet available, as against approxim
at Chicago in 1893, and very much less at Paris in
of this space is to be devoted to foreign educati
Never before have so many nations brought togeth
a complete and instructive exposition of their edu
ties. The greatly increased number of exhibito
illustrated as follows: our own state has been
one half the space given us at Chicago in 1893,
the great increase in floor area, and yet I can
we have our share, receiving practically the
space as that assigned to Massachusetts and
gether. I am not sure that the limited assign
end work us any harm. Many have said that t
United States educational exhibit at Paris w
its limitations and in the installation of the
valuable material in the smallest amount of
tion, concentration, elimination. If twice
signed us, I am not sure a better prepared
exhibit would have doubled the value. Unde
everyone who is working in our state exhibi
or on some part that feature of it, is lab
view—to make the most comprehensive e
space, and to avoid useless repetition of
working along the lines already follow
ern sisters. In reading over the circular
of the educational exhibit of a state not
great exposition, I find the following:
can care for only about 12 tons of ex
needless freight bills, we ask all intru

school board in our State could spend $150 to better advantage than to pay the expenses for the superintendent or high school principal, or both, for a three weeks' stay at the St Louis Exposition, affording them ample opportunity to study the educational exhibit.

There never has been an educational exhibit which can begin to approach that which is now in course of preparation. There are 156,670 square feet available, as against approximately 96,000 at Chicago in 1893, and very much less at Paris in 1900. 43% of this space is to be devoted to foreign educational exhibits. Never before have so many nations brought together in one place a complete and instructive exposition of their educational activities. The greatly increased number of exhibitors can best be illustrated as follows: our own State has been assigned about one half the space given us at Chicago in 1893, notwithstanding the great increase in floor area, and yet I can assure you that we have our share, receiving practically the same amount of space as that assigned to Massachusetts and Pennsylvania together. I am not sure that the limited assignment will in the end work us any harm. Many have said that the strength of the United States educational exhibit at Paris was brought out by its limitations and in the installation of the greatest amount of valuable material in the smallest amount of space. Condensation, concentration, elimination. If twice the space were assigned us, I am not for a minute prepared to admit that our exhibit would have double the value. Under present conditions, everyone who is working on our state exhibit, whether as a whole or on some particular feature of it, is laboring with one end in view—to make the most comprehensive exhibit in the smallest space, and to avoid useless repetition of material. We are not working along the lines apparently followed by one of our western sisters. In reading over the circulars issued in the interests of the educational exhibit of a state not far from the scene of the great exposition, I find the following: "We estimate that we can care for only about 12 tons of exhibit material. To avoid needless freight bills, we ask all intrusted with the receipt and shipment of exhibits in the various counties to send only about one pound for every 16 pupils enrolled in the county last year." New York will not exhibit by the pound. Awards are not granted on avoirdupois. Weighty work—educationally speaking—makes no appreciable effect on the pointer of the commercial scales.

The advisory committee, representing the two great educational departments and all of the important educational associations of the State, has rendered most valuable services in the preparation of our state exhibit. At its meeting in Albany last October, it determined to set aside from the 100 units devoted to the entire exhibit 20 units for "high schools and academies." When we stop to consider the various educational interests involved—kindergartens, elementary grades, the training of teachers, the colleges and universities, the industrial and trade schools, the business and commercial schools, schools for the Indian, and defectives, summer schools and our great administrative departments—it is readily apparent that our secondary schools have been assigned, we might say, more than their legitimate share of the available space. After a thorough discussion, it was the unanimous opinion of the committee that it is in these same secondary schools that the world is interested, and that our exhibit in this branch should be as comprehensive and instructive as it is possible to make it. It will be. The work of the various high schools and academies in this State in all branches will be clearly set forth, by means of written class exercises, notebooks, drawings, manual training work, etc. We shall have a most interesting exhibit of plans of high school buildings, systems of heating and ventilation, and seating arrangement. We shall show the apparatus which is required in a well equipped high school of this State, and also specimens of homemade apparatus for use in localities of limited resources and those in which the educational spirit is not over developed, and up to date apparatus is not regarded as one of the essentials.

The State Teachers Association, at a meeting of its executive committee in New York some time since, decided to abandon the exhibit in connection with its summer meeting and to devote the funds usually set apart for that purpose to a statistical exhibit in connection with the state exhibit at St Louis. I predict that this exhibit will be of widespread interest. It is now in course of preparation and will consist of graphic charts touching on all of the educational activities of our State. New York State has facilities for gathering educational statistics second to those of no other state in the Union, and to my mind, superior to those of the United States Bureau of Education at Washington. Commissioner Harris has no means of enforcing a penalty in case of refusal to furnish statistics which are requested. The educational standard set by the State of New York is of the highest, and educational institutions of other states which desire to be recognized in any way by New York State realize that the penalty of refusal to furnish accurate and full statistics will be nonrecognition of their credentials.

I have not discussed, and do not purpose at this time to discuss in detail the preparation of our own state exhibit. I have done so in previous educational meetings, and have sent broadcast through the State circular matter in reference to the ways of preparing work for exhibit, and I am constantly in correspondence with the different city systems and institutions which expect to contribute material. I believe that a discussion along those particular lines would be of no interest to the members of this association. The exploitation work in connection with our exhibit is practically closed. It but remains for those in charge to classify the work and prepare it for installation. I can not close this brief paper without expressing my gratification at the cooperation and hearty interest in our work which have been shown on the part of principals and superintendents throughout the State. There have been many calls for exhibits within the past few years, so many that the work was taken up reluctantly in many localities. It was quickly seen, however, that our State has a duty to perform, and, in view of the widespread interest and participation, New York must surpass herself on this occasion; consequently there has been a most generous response to our appeal for exhibit material and the result is no longer in question. I am confident that, when the work of the international jury has been completed, when the educational world has had an opportunity to compare our work with that of the other states of the Union and countries of the world, it will be found that the educational prestige of the Empire State not only remains unshaken, but is materially advanced.

Tuesday afternoon, December 29

REPORT OF SYLLABUS COMMITTEE ON HIGH SCHOOL ENGLISH

Prin. T. B. Lovell—I beg leave to read a letter written to Superintendent Boynton, who has charge of the committees on the suggested revision of the syllabus.

Dec. 29, 1903

To Sup't F. D. Boynton, Chairman of the syllabus committees of Associated Academic Principals of the State of New York:

I beg to offer the following report of the work of the committee on English which you appointed.

The first meeting was held one year ago on Monday of the week of the meeting at Syracuse of Associated Principals.

At this meeting Principal Marvin was appointed secretary. Plans were discussed at length, and the following was agreed on for an outline of work.

1 The college entrance course in English to be the required texts for study.

2 These to be properly arranged in divisions for four years, graded according to difficulty of the text.

3 The subjects for study and emphasis to be, (*a*) grammar, (*b*) composition, (*c*) rhetoric, (*d*) interpretation of literature.

4 It was agreed that reports for study of English, based on the above plan, should be sent to the chairman of the committee before the meeting of the convocation in June.

At the meeting of the committee, in June, in Albany, the discussion of these reports occupied eight hours, but the work was not completed on account of disagreement of one member with certain requirements.

During the summer and autumn the members of the committee worked on their several reports, and correspondence was continued.

Principal Marvin condensed these ideas into one report, and completed the whole by adding his own development of each of the four years' study.

The chairman at the meeting held Dec. 28, 1903, in Syracuse offered his report, embracing all the material in which the others agreed, with some additions of his own, to meet the evident wishes of a large number of educators in the State.

THOMAS BAILEY LOVELL
Chairman subcommittee on English

This proposed course of study in English has been prepared by Prin. Arthur Marvin, secretary of the subcommittee on English, at the request of its chairman, Prin. Thomas Bailey Lovell.

It has been submitted to Albert S. Cook Ph.D. L.H.D., professor of English language and literature, Yale University, who writes as follows:

New Haven, Nov. 14, 1903

DEAR MR MARVIN: I have read with great pleasure the report of the subcommittee on English, which you have been good enough to put before me. Certain strictures on minor points, which I touched upon in our conversation this evening, I have taken the liberty of indicating, as you will see, in the copy of the report. These scarcely affect, however, the character of the work as a whole. What peculiar conditions, if any, exist in the schools of New York which bear upon the introduction of such a scheme, I am in no position to estimate. With this reservation, I can praise the plan almost unreservedly. Perhaps it will be convenient if I express my judgment under a few separate heads:

1 The plan is coherent. Each of its parts has been conceived with reference to all the others. There are, it seems to me, due gradation and due proportion throughout.

2 The plan seems feasible. It implies no more than ought to be accomplished by the grammar schools, and at each stage it demands no more of the pupil than, with proper qualifications on the part of the teacher, ought readily to be achieved.

3 Practical aims are not sacrificed to ideal ones, nor the ideal to the practical. Ideals create enthusiasm, and enthusiasm generates hard work; thus the practical is safeguarded by the very elements which, upon a superficial view, might seem to have no direct relation to it.

4 The function of the schools as builders of character and fountains of national life is insisted on throughout.

5 The province of literature as inspirer, guide, and consoler is fully recognized.

6 All the aspects of English study, as understood by competent experts, receive due consideration, and, instead of being rendered barren by divorce from one another, are combined in fruitful union.

7 The course is cumulative. Nothing important is dropped when it has once been studied, but continually reappears in ever higher and higher forms, thus providing at once for review and progress.

8 The work is such as the best colleges must approve. It is based upon the books suggested by the national committee for entrance requirements, and deals with those books in a manner certain to commend itself to the national committee and to all good judges.

In conclusion, I may say that I wish a course substantially identical with this might be adopted and successfully carried out, not only by the State of New York, but by every state of the Union. In fact, if it is thus carried out by the State of New York, it is likely to serve as a model after which other states will pattern.

I am, dear Mr Marvin

Cordially yours

[*Signed*] ALBERT S. COOK

ACADEMIC STUDIES

Group 1

LANGUAGE AND LITERATURE

ENGLISH

1st year English	3d year English
2d year English	4th year English

Supplementary course in the history of English and American literature.

Requirements

1st year English is required of every 1st year high school student five periods per week of 45[a] minutes each throughout the entire school year.

2d year English is required of every student who has completed 1st year English four periods per week of 45[a] minutes each throughout the entire school year.

3d year English is required of every student who has completed 1st and 2d year English three periods per week of 45[a] minutes each throughout the entire school year.

---

[a] The length of the recitation period may be reduced to not less than 30 minutes in schools where a longer time can not be given.

4th year English is required of every student who has completed 1st, 2d, and 3d year English three periods per week of 45[a] minutes each throughout the entire school year.

1st and 2d year English are required for every veterinary student certificate.

1st, 2d, and 3d year English are required for every law student or dental student certificate.

1st, 2d, 3d, and 4th year English are required for every medical student certificate, or academic diploma.

Attention is directed to the fact that *no* foreign language may be substituted for English.

Every examination paper in 1st, 2d, 3d, or 4th year English must contain a declaration from the student that the time allotment has been fully met.

Introductory

English is one indivisible subject. It may not be broken up into parts, one part to be taught one year, another part the next year, and so on. In a practical high school course in English, there should be no line of demarcation between "grammar" and "composition," between "composition" and "rhetoric," between "rhetoric" and "literary interpretation." They are merely varying aspects of the same general subject. These terms are used as one speaks of the shape, size, color, or material of an object in describing it, not forgetting that the object remains always the same.

Grammar

There is to be no separate study of formal grammar. The mere naming of clauses and phrases, the mere recitation of so called rules of grammar, will not help one to speak and write correctly. Sound grammatical instinct is to be acquired in two ways only: through constant study and imitation of good models; next, through persistent correction of one's faults. The texts named below will afford ample material for instruction in all the English grammar that can be taught in any high school course. The offices of the noun and pronoun; the functions of adjectives as attributive and predicate, and those of adjective, adverb, and infinitive phrases; the various offices of the noun clause; the offices of the adjective clauses as restrictive and unrestrictive; the offices of the adverb clauses of time, manner, cause, purpose, condition, concession, degree, and result; the connectives introducing these; the alternations of *shall* and *will* in the three persons; the varied uses of the other auxiliaries; the division of verbs into regular and irregular, or strong and weak; the sequence of tenses; the nice distinctions between the subjunctive and the indicative—these are some of the grammatical features that should receive the attention both of teachers and of students. For the accomplishment of this work textbooks on English grammar should be in the hands of the student for reference. Analysis is the method of ascertaining the relations which the larger elements, especially, sustain to other portions of the sentence—it teaches how to construct the sentence; and the degree in which the analytic study of grammar can be made tributary to the great art of expression is the measure of its worth in high school studies.

---

[a] *The length of the recitation* period may be reduced to not less than 30 *minutes in schools* where a longer time can not be given.

Expression (including composition)

Correct oral and written expression are among the chief aims in the study of English.

Oral expression should include pronunciation; training of the speaking voice, with practice in the underlying principles of emphasis and expression—such as pitch, force, time, and quality in utterance; expressive reading as an aid in the interpretation of literature; and rhetorical work, of which the following three forms are suggested: (1) the declamation, valuable as a means of forming one's manner; (2) the oration, valuable as a means of forming one's thought; and (3) the debate, useful as a means of putting thought into action—a practical form of public speaking, developing ability to cope with emergencies. Rhetorical exercises and interscholastic debates are suggested as aids in promoting excellence in oral expression. In the classroom, every time the student recites the teacher should insist that he express himself correctly in complete sentences, and during the last two years of the course at least fluently, if not elegantly. It should be the ambition of every teacher to develop and to sustain an unflagging interest in oral composition.

The student is to be set to composing immediately, and is to be kept at it throughout the four years. It is suggested that at the beginning of the high school course each student procure a notebook (one 8x10 inches in size and about 150 pages in length is suitable) which is to be kept in the classroom, and in which he may write briefly and frequently at the time of the recitation, and keep his outlines, as well as his grammatical, rhetorical, and literary notes. This book should be carefully examined by the teacher from time to time, and errors in spelling, use of capitals, punctuation, diction, sentence structure, and paragraph structure indicated, the corrections to be made by the student. More than one notebook may be required.

In part the subjects are to be taken from the books studied in the English course, in part they are to be independent of the books, yet connected or associated with the student's life in school and out of it. Subjects disconnected with his life and study are to be discouraged. The subjects taken from the books of the course are to be aids in the interpretation of the books. In fact they ought frequently to be in the nature of reviews of sections of the books, though they may be framed so as to encourage independent thinking.

At first, composition should be restricted to the writing of single paragraphs. The principles of unity and sequence should be thoroughly explained and rigorously enforced. Sentence structure should be taught in connection with the paragraph. That is to say, although unity and clearness of the sentence may be taught in the individual sentence, the student should be made to understand from the outset that sentences must be adjusted to one another in the paragraph. The length of the sentence, the order of words, the placing of the emphasis, depend upon the adjacent sentences in the paragraph. In brief, the paragraph is to be the unit of composition.

After the various means of developing single paragraphs—e. g. repetition, definition, contrast, explanation and illustration, particulars and details, proofs, enforcement, introduction and transition—have been studied and practised, the student should learn how to make the transition from one paragraph to another. At this point the writing of short essays should begin, the length to increase as the student grows in power of expression. At first the essays should be narrative; later, descriptions, expositions, and argumentations should be studied with the utmost care, both by means of illustrations and by practice.

The essays should always be of moderate length. Twelve hundred words should be a safe maximum; six hundred, a safe minimum. Every essay should be preceded by an outline. That is to say, the student, before writing the essay, should hand in an outline in which the subject or theme of the whole paper and the topics of all the paragraphs are stated in succession, concisely but clearly, in complete sentences. The teacher should not require the outlines from the several members of the class to be alike; all that can fairly be asked is that each student be able to justify his own. Large room should be given to the play of individuality.

Rhetoric

There is to be no study of formal rhetoric by itself. Today the best teachers of English recognize the fact that rhetoric is so intimately connected with composition as to be indissoluble from it. If composition deals with expression, rhetoric may be said to deal with *effective* expression. Moreover, rhetoric grounds itself in grammar, which it necessarily implies.

Examples of clearness, force, unity, elegance, and other so called "qualities of style" may be found in abundant measure in the literature of the English course and should receive careful attention. All forms of rhetorical imagery—e. g. simile, metaphor, personification, allegory, synecdoche, metonymy, antithesis, epigram, hyperbole, climax, apostrophe, vision, interrogation, exclamation, irony, etc.—should be studied when met with in the literature, and the functions of each be learned. Versification should be studied through its many devious phases from a foot to a complete dramatic poem, and should be based on the poetry found in the English course. Prose forms—narration, description, exposition, and argumentation—and poetic forms—epic, lyric, and dramatic—should be studied as opportunity affords. Textbooks on composition and rhetoric should be in the hands of the students.

The aim in the study of rhetoric is not only to find in literature the methods of effective discourse and felicities of thought and of expression and to make our reading a source of growth and enjoyment, but by these means to yield to the student rich tribute for the supreme art of expression.

Literary interpretation

Too much stress can scarcely be laid upon the study of the selections for the course. It is through this that the student is to learn (1) diction, (2) sentence and paragraph structure, (3) contents of sentences and paragraphs, and (4) the art of connected discourse.

1 Diction, the choice of words. Our English language is in this matter peculiarly difficult. Only by studying words as they are used by careful writers is it possible for the student to learn meanings and shades of meaning, and especially the significance of phrases. The phraseology of such writers as Shakspere, Milton, Addison, Burke, and Macaulay is of incalculable value to every one. Carefully taught, the diction of the books on the list will do much to cure the student of vulgarisms and of slang, and to strengthen all his school work.

2 Sentence and paragraph structure. From the authors studied the student should learn to perceive and to estimate the qualities of unity and clearness, force and elegance, in the construction of sentences. These qualities can be studied in English poetry no less than in prose. For paragraphing, prose authors are of course the sole models. At all events, the student is to be trained to regard the authors as models for imitation. From them he is to catch the spirit of writing. He is to be encouraged to assimilate their words and turns of phrase, to analyze their paragraph structure and their methods of handling subjects.

3 Contents of sentences and paragraphs. It is needful here to discriminate between those books which deal with facts and those which are essentially imaginative.

a The works of imagination in the course largely outnumber the works which deal with facts. From this we infer that the chief aim is to quicken and guide the student's imagination and to cultivate his taste. The further inference is that the student is to acquire the habit of turning aside from the everyday world, and of exploring a world peopled by beings whom he can apprehend only through his sympathy. Imagination and sympathy, then, are the chief objects of the training.

The important step is to awaken the student's interest in what he reads, to make him realize that the incidents and the persons, though not to be met in daily life, are nevertheless real in the sense that they present human life and action under typical aspects. The student is to learn that all these creations, whether of Shakspere or George Eliot, are truly human, presenting character in its weakness and in its strength. In this idealized humanity the student is to recognize his own; he is to feel through sympathy that these men and women and their actions correspond to something in his own nature.

Further, the student's attention should be directed to the relation between character and conduct. He is to learn that in the world of the great imaginative writers things do not happen by chance, that a person's deeds may be traced to his character. Even in such romantic poems as the *Ancient Mariner* and the *Vision of Sir Launfal,* this ethical teaching can be brought out with sufficient clearness.

In learning to value an imaginative piece as a whole, the student is to learn also to value the author's single thoughts, and the manner and power with which they are expressed. The reading should be slow, the study close. The teacher should linger over the determining passages, and impress upon the student the significance of each word and phrase. To this end there should be, in the poetry at least, a good deal of memorizing; for it is only through repetition and memorizing that one can hope to grasp the full import of grand poetic utterance. For the young, such memorizing is all-important; it stores the mind with noble thoughts and images; and fixes in it words and phrases useful in after life.

Still further, too much stress can scarcely be laid upon the value of reading aloud as a means of refining the student's taste. This value is not to be defined; it can be only hinted at. Nevertheless it is real, perhaps the most real and lasting of all the benefits of the course.

b On the other hand the study of those books which deal with matters of fact, the study of the lives of Addison, Goldsmith, Johnson, of Burke's *Conciliation*, is of a different sort. Here the student is to be taught the significance of actual men in the development of actual society. He must apprehend clearly and exactly the facts in the lives of the men studied and the relation of the men to the society in which they lived.

4 The art of connected discourse. In this part of the study the stress should be laid upon the author's art of exposition or argumentation, for these books are the student's chief models of those forms of discourse. Attention should be directed to the author's lucidity of statement, his ability to coordinate facts and group general principles, his sense of proportion, his mastery of the subject as a whole.

If the study of the works of imagination is an appeal to the student's sympathies, the study of the present class of work must be a persistent effort to widen the student's range of reading, to quicken his insight, and to strengthen his capacity of sustained logical thinking.

General plan of study

The following general plan of study is suggested, which with some modifications may be applied to every book in the course.

1 Meaning of the author
  a Outline of the story
  b Incidents in the story
  c Central idea and purpose of the story

2 Method of the author
  a Does the interest center in the incidents and the scenes or in the characters?
  b Is there a climax?
  c Do all the parts converge to this point?
  d Are the parts arranged in a sequence?
  e Are they treated in the right proportion?
  f Is the interest sustained? How?
3 Style of the author
  a Character of vocabulary
  b Meaning in detail of particular words and sentences
  c Prevailing sentence forms
  d Paragraph structure
  e Use of embellishment

The intelligent appreciation of literature

Criticism is the only means of acquiring an intelligent acquaintance with literature; although profound criticism is possible only to mature and special students, it is entirely possible for high school students to become familiar with the elementary principles of literary criticism. To this end, every teacher should be ambitious to understand and to explain to the students (1) the principles of (*a*) vision, (*b*) sincerity, and (*c*) beauty in the author—all of which are essentials in literature; and (2) the laws of style—economy, simplicity, sequence, climax, and variety. It may be of interest and value to apply these principles and laws to contemporary articles in some of the leading magazines.

All of the student's training in English should be brought to a climax in the fourth year, and the aim should be to send him into the world equipped as fully as possible to appreciate English and American literature.

1st year English

First half

Required texts. Scott's *Lady of the Lake,* Coleridge's *Ancient Mariner.*

Suggested texts. Narratives in both prose and verse, some brief, some of greater length, selected by the teacher from the following list, and representing various qualities of style. Some of the books should be studied in class, others assigned for home reading. In some cases it is well to study in class portions of a work of considerable length and to require that the remaining parts be read at home.

1 *Brown, Dr John.* Rab and his Friends

2 *Bulfinch.* Age of Fable

3 *Bunyan.* Pilgrim's Progress

4 *Burns.* Tam O'Shanter; The Cotter's Saturday Night; Auld Lang Syne

5 *Burroughs.* Sharp Eyes; Winter Neighbors; An Idyl of the Honey Bee; The Apple

6 *Byron.* All for Love; Beauty; Fare Thee Well; The Isles of Greece; Childe Harold

7 *Cooper.* Last of the Mohicans; The Pilot; The Spy; The Deerslayer

8 *Curtis.* Essays from the Easy Chair

9 *Dickens.* Tale of Two Cities; David Copperfield

10 *Eggleston.* The Hoosier Schoolmaster

11 *Franklin.* Autobiography; Father Abraham's Speech

12 *Goldsmith.* Deserted Village; Traveller; Vicar of Wakefield; She Stoops to Conquer

13 *Hale.* Man without a Country

14 *Hawthorne.* House of Seven Gables; Twice Told Tales; The Blithedale Romance

15 *Henty.* Wulf the Saxon; The Young Cathaginian

16 *Hughes.* Tom Brown's School Days

17 *Irving.* Sketch-book; Alhambra; Life of Washington; Life of Columbus

18 *Kipling.* Jungle Books; The Recessional

19 *Kingsley.* Westward Ho!; Water Babies

20 *Longfellow.* Psalm of Life; Tales of a Wayside Inn; Hiawatha

21 *Poe.* The Bells; The Raven; Annabel Lee; To Helen; The Fall of the House of Usher; The Gold Bug

22 *Pope.* The Universal Prayer; Essay on Man

23 *Ruskin.* The King of the Golden River

24 *Scott.* The Abbot; Kenilworth; Marmion

25 *Shakspere.* As You Like It; The Tempest

26 *Stevenson.* Dr Jekyll and Mr Hyde; Kidnapped; David Balfour; Treasure Island

27 *Stowe.* Uncle Tom's Cabin

28 *Wallace.* Ben Hur

29 *Warner.* Being a Boy

30 *Whittier.* Snow-bound; Barefoot Boy; Maud Muller; Tent on the Beach

During this part of the course the emphasis should be laid on *narration*, in order to induce spontaneity on the part of the student, and to this end he should write paragraphs and short themes based on the study of models and on his own experience. The external form of the composition, e. g. heading, margins, and indentation of paragraphs should receive careful attention. Legibility and neatness in penmanship should be zealously maintained both by teacher and by student throughout the course. The selection of material (unity), its arrangement (sequence), and proportion in treatment (emphasis), should be taught to one student at a time so far as possible in connection with his written paragraphs and themes. Emphasis should be laid on the paragraph as the unit of composition, and such arrangement of the sentences in each paragraph should be made as will best secure clearness and proper emphasis.

The elements of English syntax should be reviewed, and there should be an incidental study of punctuation and capitalization. Accuracy in these matters, and especially in spelling, should be insisted upon throughout the course. There should also be an elementary study of rhetorical imagery and of versification.

It is wise to read aloud in class, with careful attention to oral expression, all—or nearly all—of *The Lady of the Lake*, while *The Ancient Mariner* may be read aloud more than once with excellent effect. Selected portions of both should be memorized.

1st year English

Second half

Required texts. Scott's *Ivanhoe,* Lowell's *Vision of Sir Launfal.*

Suggested texts. Examples illustrative of various styles of descriptive literature, in both prose and verse, to be selected from the list of suggested texts given above.

The emphasis should be laid on *description,* the aim being to secure accurate expression. It is well here to introduce a somewhat thorough study of words as to origin and meaning, and of the analysis of words into their various elements. The history of certain words may be studied to advantage. Words that give pictures should be noted, specific words and general terms compared. The difference between *narration* and *description* should be made clear to every student. The elementary study of unity, sequence, and emphasis in the whole composition, the paragraph, and the sentence should be continued.

Enough of *Ivanhoe* should be read aloud in class to enable the students to appreciate the wonderful descriptive power of Scott, but the rest of the book should be read at home, with occasional written recitations based upon portions of it. The *Vision of Sir Launfal* should be read aloud in class with the greatest possible felicity of expression. The splendid imagery of its descriptions and the influence of character upon conduct—the ethical motive—should be brought home to every student with the utmost delicacy of treatment.

2d year English

First half

Required texts. Irving's *Life of Goldsmith, Sir Roger de Coverley Papers.*

Suggested texts. To be selected from the list given above or from the following:

1 *Arnold, Matthew.* Balder Dead; Sohrab and Rustum

2 *Bacon.* Essays on Truth, Love, Travel, Friendship, Discourse, and Studies

3 *Bryant.* Thanatopsis; The Flood of Years; A Forest Hymn; To a Waterfowl

4 *Cowper.* John Gilpin; On the Receipt of My Mother's Picture

5 *Craddock.* When the Battle Was Fought; Prophet of Great Smoky Mountain

6 *Froude.* Julius Caesar

7 *Gray.* Elegy; The Bard; Ode to Adversity; Installation Ode

8 *Griffis.* Brave Little Holland; The Pilgrims in their Three Homes

9 *Hearn.* Chita

10 *Herrick.* Lyrics—specially Corinna's Maying; and Counsel to Girls

11 *Holmes.* The Chambered Nautilus

12 *Keats.* Eve of St Agnes; The Star; Ode to a Nightingale; Ode to Autumn

13 *Lanier.* Sunrise; Marshes of Glynn; Song of the Chattahoochee

14 *Lockhart.* Selections from Life of Scott

15 *Lowell.* The Present Crisis; My Garden Acquaintance

16 *Macaulay.* Lays of Ancient Rome; Essay on Clive

17 *Malory.* Morte d'Arthur

18 *Marshall.* Life of Washington

19 *Nicolay & Hay.* Life of Lincoln

20 *Reade.* The Cloister and the Hearth

21 *Scott.* Quentin Durward; Woodstock; Talisman; Lay of the Last Minstrel

22 *Seton-Thompson.* Wild Animals I have Known

23 *Shakspere.* Richard 2; Midsummer Night's Dream; Romeo and Juliet

24 *Shelley.* The Cloud; Ode to a Skylark; Ode to the West Wind; The Poet's Dream

25 *Sheridan.* The Rivals

26 *Southey.* Life of Nelson

27 *Swift.* Gulliver's Travels; Tale of a Tub

28 *Taylor.* Bedouin Song; Canopus; The National Ode; Lars; Views Afoot

29 *Trevelyan.* Selections from Life of Macaulay

30 *Wordsworth.* Intimations of Immortality; Tintern Abbey

Narrative and descriptive themes should be written occasionally, but the emphasis should be laid upon *exposition,* the aim being to encourage logical thinking and adequate expression. The subjects chosen should be concrete, carefully limited and within the student's experience. Practice should be given in definition, and in the explanation of simple and familiar things. Due attention should be given to the planning of themes after the study of models, and to adherence to a plan or outline in writing the essays.

There should be a further study of paragraph structure with respect to unity, coherence, and emphasis, to the use of the topic sentence and of connectives, and to methods of transition. Periodic, loose, and balanced sentences should be studied and compared. The effect of long and short sentences should be noted.

In general, the principles already studied should be continually reviewed as occasion occurs.

The *Life of Goldsmith* should be read in class until the teacher is convinced that it is made attractive to the students, when it may be discontinued and completed at home, with the help of occasional oral or written recitations.

The *Sir Roger de Coverley Papers* should occupy the attention of the class for some time, although it is not necessary to read them all in class. These *Papers* are excellent models for theme work, and as such should be carefully studied and analyzed.

It is suggested that time be reserved during this term for some study of lyrical poetry. Poems should be selected from the list of suggested texts that are not too difficult of comprehension, that have an easy, flowing movement, and that are pleasing because of the freedom of their rhythmical qualities, as well as for beauty of thought. In connection with these poems the study of versification and of rhetorical imagery should not be neglected. The student should be led to see that the particular form of versification is a fitting garment for the thought, and he should also appreciate the added beauty of rhythm and rhyme.

2d year English

Second half

Required texts. Macaulay's *Essay on Addison,* Shakspere's *Merchant of Venice.*

Suggested texts. To be selected from the lists given above.

For the written work the suggestions made for the first half of this year should be followed.

At some time during this year a brief chronological outline should be given by the teacher, showing the main periods and some of the chief writers of English and American literature. The outline given under the "Supplementary course in the history of English and American literature" may be followed. This skeleton outline may be filled in as the course progresses. Some supplementary instruction in the way of informal talks may be given from time to time.

Macaulay's *Essay on Addison* should be read aloud in class. Careful study of its paragraph structure should be made, and after its completion an outline of the entire essay should be evolved and preserved in the students' notebooks. Correlation should be made between this essay and the *Sir Roger de Coverley Papers.*

Shakspere's *Merchant of Venice* should also be read aloud in class and carefully studied. An elementary study of the structure of the plot should be made, but the chief aim should be to arouse an abiding interest in Shakspere. To this end, close, thoughtful study is indispensable.

3d year English

First half

Required texts. Tennyson's *Gareth and Lynette, Lancelot and Elaine, Passing of Arthur;* George Eliot's *Silas Marner.*

Suggested texts. To be selected from the lists given above or from the following:

1 *Addison.* Cato's Soliloquy; Songs in Rosamond; Hymns
2 *Austen.* Emma; Pride and Prejudice
3 *Bellamy.* Looking Backward
4 *Blackmore.* Lorna Doone
5 *Boswell.* Life of Johnson

6 *Bulwer.* Last of the Barons; Last Days of Pompeii

7 *Cable.* Grande Pointe; The Grandissimes

8 *Crawford.* Saracinesca; Via Crucis

9 *Church.* Roman Life in the Days of Cicero

10 *Drake.* The American Flag

11 *Dryden.* Absalom and Achitophel; Palamon and Arcite; Alexander's Feast

12 *Eliot.* Adam Bede; Romola

13 *Emerson.* The American Scholar; Concord Hymn; Friendship

14 *Green.* Selections from Short History of the English People

15 *Lecky.* Selections from History of England in the Eighteenth Century

16 *Lincoln.* Gettysburg Speech; Second Inaugural Address

17 *Macaulay.* Selections from History of England; Essay on Milton

18 *Mitchell, S. Weir.* Hugh Wynne; The Cup of Youth

19 *Muloch.* John Halifax

20 *Parkman.* Conspiracy of Pontiac; Montcalm and Wolfe

21 *Phillips, Wendell.* The Murder of Lovejoy; Toussaint L'Ouverture

22 *Ruskin.* Sesame and Lilies; Queen of the Air

23 *Shakspere.* Richard 3; Henry 4 (part 1)

24 *Stedman.* Victorian Poets; A Victorian Anthology; The Poets of America

25 *Tennyson.* Crossing the Bar; The Children's Hospital; The Princess

26 *Thackeray.* Henry Esmond; Vanity Fair; The Newcomes

27 *Tyndall.* Hours of Exercise in the Alps; The Imagination in Science

28 *Washington.* Rules of Conduct; Farewell Address

29 *Webster.* Bunker Hill Orations; Plymouth Oration

30 *Whitman.* O Captain! My Captain!

During this part of the year the written work should be based mainly upon *narration, description* and *exposition.* With the aid of some of the suggested texts, a preliminary study of *argumentation* should be made, in preparation for the study of Burke's *Speech on Conciliation* during the fourth year. The emphasis, however, should be laid upon character study, as exemplified in the novel. Novels, representing the different classes of fiction, should be selected for study both in school and at home. It is best to select novels not too long, and those that have abundance of incident.

Attention may now be drawn to the refinements of composition. Continually increasing attention should be given to the best word for the place in every instance. Students should now be led to express themselves, not only with accuracy, but also with some degree of elegance. It is well to call attention to the fact that the best authors use the simplest language, and that for English-speaking people words of Anglo-Saxon origin are usually best. Care should also be given to the arrangement of words, with the special view to securing force, smoothness, and elegance. Subjects for composition should be drawn to a considerable extent from the literature studied. It is also well to draw upon the other subjects of the curriculum for suitable topics, particularly history and science. Stories, episodes, conversations upon various topics, descriptions of scenes, and character sketches are suggested. At least one argumentative theme should be required. Outlines of the themes should be carefully prepared by the students. The principles studied during the first and second years should be continually reviewed as occasion occurs.

The Arthurian legend should be studied until a background is formed for the intelligent study of Tennyson's poems; then they should be read aloud in class carefully, with due reference to expression. The diction and allusions should be mastered sufficiently to make the thought of each sentence clear in the student's mind. Notes and reference books should be freely used with this aim in view. Selections from all three poems should be memorized.

Silas Marner should be made the basis for character study. Selected portions of the book should be read in class, the remainder studied at home; attention should be given to the structure of the plot, and the relation between character and conduct should be borne in mind.

3d year English

Second half

Required texts. Milton's *L'Allegro, Il Penseroso, Comus,* and *Lycidas;* Shakspere's *Macbeth.*

Suggested texts. To be selected from the list given above.

During this half year the emphasis should be laid upon the drama, with special reference to Shakspere. Attention should be given to grammatical construction, and especially to the difference between the plot of a drama and that of a narrative poem. In this connection it may be well to read some such critical studies of poetry as are found in the works of Matthew Arnold and of James Russell Lowell. There should be a further and more minute study of versification, and of the characteristics of poetic diction. The composition work may very properly be to a large degree studies of characters of the drama, and the critical treatment of the various plays, from the student's point of view. This last phrase is important; the student should not merely read the plays, but should study them, and should give expression, not to the teacher's nor the critic's views, but to his own. Some time should be reserved for a further study of *argumentation.*

Read aloud in class *L'Allegro* and *Il Penseroso.* Teach the students to bring out the full beauty of rhythm and rhyme, on which poetic charm so much depends. Then the poems should be studied carefully word by word with copious use of notes and of reference books, the aim being to understand and to interpret the author's thought. The use of rhetorical figures should receive attention. Resemblances and contrasts in the two poems should have deliberate study. Most, if not all, of each poem should be learned. Read aloud and study in class, line by line, a certain number of lines of *Comus* each day until the poem is completed. Make free use of notes and of reference books as aids to understanding the poet's meaning. Point out characteristics of poetic diction, and study the position of the " mask " in English literature in some detail.

Have the students memorize selected passages. *Lycidas* ought to be read aloud in class slowly and deliberately. The dictionary should be consulted frequently, and sometimes almost every word should receive careful thought and study. After the poem has been carefully studied, have it read aloud in class several times with proper attention to oral expression. The students should memorize selected passages.

In the study of *Macbeth* attention should be directed to the unity of action as well as to the unity of thought. The entire play should be read aloud in class, and the function of each act—nay, of each scene—in the structure of the plot should be carefully analyzed. The use of the supernatural should be studied, and all difficult or unusual words and all allusions should be carefully explained. The character study begun earlier in the course should be continued, and character results or consequences should be noted. Macbeth and Lady Macbeth afford excellent examples for a study in character contrast. Selected passages should be memorized.

4th year English

First half

Required texts. Macaulay's *Life of Johnson*, Burke's *Speech on Conciliation with America*.

Suggested texts. To be selected from the lists given above or from the following:

1 *Browning.* Rabbi Ben Ezra; Pippa Passes

2 *Bryce.* American Commonwealth (abridged)

3 *Burke.* Warren Hastings

4 *Carlyle.* Essay on Burns; Heroes and Hero-Worship; Sartor Resartus

5 *Chaucer.* Prologue; Knight's Tale

6 *Choate.* Eulogy on Daniel Webster; American Nationality

7 *De Quincey.* Revolt of the Tartars

8 *Fiske.* The War of Independence; The Destiny of Man; Political Ideas

9 *Fox, C. J.* Selected Speeches
10 *Gaskell.* Life of Charlotte Brontë; Cranford
11 *Hawthorne.* Marble Faun; Scarlet Letter
12 *Johnson.* Rasselas; Selected Lives of the Poets
13 *Kingsley.* Hypatia
14 *Macaulay.* Warren Hastings
15 *Mackenzie.* Nineteenth Century
16 *Milton.* Paradise Lost (books 1, 2); Areopagitica
17 *More.* Utopia
18 *Phillips, Wendell.* On the Lost Arts
19 *Prescott.* Conquest of Mexico; Conquest of Peru
20 *Reed.* The Immortality of Good Deeds
21 *Ruskin.* The Crown of Wild Olives; Ethics of the Dust
22 *Shakspere.* Hamlet; King Lear
23 *Smith, Goldwin.* The Lamps of Fiction; The Origin and Causes of Progress
24 *Spenser.* Epithalamium; Britomart
25 *Story, Joseph.* Intellectual Achievement in America
26 *Sumner.* True Grandeur of Nations; The Crime against Kansas
27 *The Federalist*
28 *Thoreau.* Walden
29 *Webster.* Reply to Hayne; Oration on Adams and Jefferson
30 *Winter.* Shakespeare's England

The composition work of this year should be varied in topic and in style. Some compositions of considerable length should be required. These should be upon subjects that will employ the student's most mature thought. Ample time should be spent in their preparation, and they should be examined and criticized step by step by the teacher. At least one argument of considerable length should be developed through formal introduction and brief. During this year the literature should be studied with due attention to the history of its development. It is well to select for supplementary study some works which will test to the full the student's mature power. Students should now learn to meet new difficulties, both in thought and vocabulary.

Like his *Essay on Addison*, Macaulay's *Life of Johnson* should be read aloud in class. Careful study of diction, sentence structure, and especially paragraph structure should be made, and an outline of the entire essay should be preserved in the students' notebooks. The qualities of Macaulay's style should receive thoughtful consideration. It is important to possess considerable knowledge of English history in order to appreciate Macaulay's *Essays* or Burke's *Speech.*

Burke's *Speech on Conciliation with America* is to be mastered as the presentation of a great political conflict fateful in its consequences. To this end it should be read aloud carefully, and with adequate expression. It should be studied slowly enough to enable the students to grasp the connection of thought, and to work out the paragraph structure. After the oration is read, an outline should be made by the students, and placed in their notebooks. Selected portions should be memorized.

4th year English

Second half

Required texts. Shakspere's *Julius Caesar.* A survey of the history of the English language and literature, or a review—at the discretion of the teacher—of the books for "Study and practice."

Suggested texts. To be selected from the lists given above.

Toward the end of the year each student should submit a final essay or thesis upon some literary subject, to show to a degree his appreciation of the work done, and to illustrate his power of expression.

Julius Caesar should be studied very minutely, because the character of Caesar is one of the most difficult in Shakspere. The characters of Brutus and of Antony, of Cassius, and of the other leading "dramatis personae" should be carefully studied and compared. The notion of "destiny" which pervades the play, and the dramatic action of "passion" should be thoroughly elaborated. To accomplish this, the bearing of each act and scene upon the crisis must be mastered. Selected portions of the play should be memorized.

Time may be reserved each week for some study of the history of the English language and literature. This study should be elementary and synoptic, the aim being mainly to guide the student's thought to a still further study in the years to come of the beauties and power of English.

Supplementary course in the history of English and American literature

This is planned as an elective course to be recited from three to five times each week throughout the last year of the high school for students who do not go to college, and for those who wish a more comprehensive survey of English and American literature.

First half

ENGLISH LITERATURE

The students should read as many characteristic selections from the principal authors as possible in order to cultivate breadth of view and catholicity of taste. The aim of the course should be directive, so that the student may be able in after life to read intelligently from the great masters of English prose and poetry. It is suggested that a textbook be used to make clear the sequence of authors, and the movements of literary activity. The study may be divided into the following periods; the first three may be treated historically with the aid of the textbook, and the reading of selections may begin with the Elizabethan period:

1 Period previous to the Norman Conquest
2 From the Conquest to Chaucer's death
3 From Chaucer's death to Elizabeth
4 The literature of Elizabeth's reign
5 From Elizabeth's death to the Restoration
6 From the Restoration to Swift's death
7 From Swift's death to the French Revolution
8 From the French Revolution to Scott's death
9 Prose literature from Scott's death onward
10 Poetry from Scott's death onward

Second half

AMERICAN LITERATURE

It is difficult to divide American literature into periods; accordingly the aim should be to present the better known American writers and to furnish a general survey of the field of American literature. It is assumed that the method outlined under "English Literature" will be followed, and that the last 10 weeks will be devoted to the study of distinctively modern American authors. This will prepare the students to appreciate the thought of the present day.

1 Colonial literature

2 Benjamin Franklin and the literature of the revolutionary period

3 Irving, Bryant and Cooper

4 Other writers before 1850

5 Hawthorne, Emerson, and Thoreau

6 Poe and Lanier

7 Statesmen and Historians

8 Whittier, Longfellow, Holmes, and Lowell

9 Literature of the Civil War

10 Literature since the Civil War

A distinguished writer of the 16th century makes use of this sentence: "Let the child be instructed in virtue and literature." We meet this afternoon with the same sentiment, wishing that all the children of the State of New York may be instructed in virtue and literature. To review the progress of educational work, let me call to your attention the condition of the study of English about 1863. The Regents of the University had no special charge of this study except to require that the school should at least once in two weeks give an opportunity for the speaking of pieces, and an opportunity for the reading of compositions or essays, with some attention to reading and spelling. The syllabus of 1890 could not have been offered to the teachers and the students of the State of New York in 1870 with a promise of its successful adoption. A member of the Regents office intimated this in conversation last evening. The syllabus of 1890 was offered at a time when the conditions were ripe for the presentation of such a syllabus. Many of you who were here in 1890 and 1891 remember the discussions, very earnest indeed and generally in a friendly spirit, between Secretary Dewey and the Academic Principals then meeting in the old high school of this city. Out of that grew the syllabus of 1890. The syllabus of 1895 could not have been presented to the teachers of the State with any degree of feeling that they would accept it in 1890. There was a growth in the study of English, as many of us know. In 1895 a great step in advance was taken in that syllabus, and a still greater improvement was made when the syllabus of 1900 was presented to us. The suggestions that are given by the committee in this pamphlet are made in no dictatorial spirit. They are given with the understanding that you will discuss them, and, if you approve them, that they are to be suggested as a possible course of study in English for five years beginning in 1905. They are indeed offered to you in a spirit of suggestion, hoping for your criticisms and for any advice which will guide the committee in an improvement on this report. The thought of 1903 is very different from the thought of 1703 or 1803. Tennyson says, "Better fifty years of Europe than a cycle of Cathay." Better 50 years of Europe than 100 years preceding the year 1700 so far as concerns advancement in commercial interests, advancement in literature, advancement in intercommunication between state and state, between nation and nation. Even telegraphic communication is not quick enough to satisfy those who sail across the ocean, an incident occurring only within the last 10 days when ships on the broad sea communicated with each other and exchanged Christmas greetings by wireless telegraphy, an event that could not have been anticipated by our fathers. In Tennyson's *Passing of Arthur* he utters this thought: Arthur is approaching the termination of his career, and, from his barge, he looks into the face of Sir Bedivere with much affection and says, "The old order changeth, yielding place to the new." And this is the spirit of the educational interests of the State of New York. The old order of 1890 or 1895 is done away with, and the order of 1900 is also changed in a marked degree. The necessity of this broadening of the thought is found in the business interests of the country and the business interests of the world at large, which demand that the students in the high schools of the State of New York be trained to write well; in the first place to think and in the second place to express their thoughts so as to be understood. A criticism is made, and there is some authority for the criticism, I think you will admit, that the graduates of the high schools do not write well. The colleges of the country some few years ago dwelt with considerable emphasis on that point, that students came to them for entrance by examination whose composition was at fault and whose spelling was very poor.

The underlying thought of the committee, in preparing this course for your consideration, is that the students of the five years succeeding 1905 shall be drilled in composition from the first year of the high school to the time of graduation. A gentleman whom you heard speak from this stage a few years ago, Mr Dill, a distinguished attorney, remarked that he would rather deal with a college graduate than with one who was not a college graduate in business relations, because, by the discipline of his life for four years, the college graduate was able to grasp quicker the new thoughts presented in a new business which he entered. The same gentleman has been known to remark that he desired to have young men to work with him who were able to write well. Two months ago a gentleman said in my office at Niagara Falls, "I would give a thousand dollars to any typewriter who would sit at my desk and take my dictation and my indication and give me a well constructed letter." Another gentleman in the city of Niagara Falls told me that he had many applications for the position of typewriter and stenographer and would try them, but he was obliged to excuse them from further attendance on him after a week's or 10 days' trial, because, while they could manipulate the keys of the typewriter well and use the pencil with facility and take rapid dictation, they failed in all that was requisite for good composition in letter writing.

Therefore the committee, acting under these impulses, have prepared the report which we hope is in the hands of all of you, that you may follow the suggestions which I am about to mention. Let me read the table of the distribution of the English reading to be read during the four years:

In the first half of the first year there are four reading subjects and one study subject. In the second half of the first year there are three reading subjects and one study subject. I call your attention to this that you may note the fact that the easier subjects come during the first year, i. e. subjects thought to be easier for the student. In the third year there are five reading subjects and two study subjects, and in the fourth year there are three study subjects, the second half of the fourth year being devoted to one study subject, Shakspere's *Julius Caesar.*

This report is offered to you for study, not only this afternoon but during the months that are to come. It is the intention of the committee to revise this report in the light of the criticisms and suggestions that may be offered by the principals of the State here or through letters that may come in to the secretary or to the chairman of the committee. After the first of July all these criticisms and suggestions will be incorporated in the syllabus on English, which I am pledged to offer to you one year from this week for your final revision, and which will then be offered to the Regents of the University as a suggested course; and, by the way, I think I may say here with the consent of the Regents office that they will be guided largely by the wishes of a majority of the principals of the State of New York, and, if this is what they want—or that on which this report is based—the Regents office will be likely to accede to the wishes of the principals of the State.

Now turn if you please to page 1 of the report. First year English is required of every high school student five periods a week of 45 minutes each throughout the entire year. That means the study of Scott's *Lady of the Lake* and Coleridge's *Rime of the Ancient Mariner, Ivanhoe,* and the *Vision of Sir Launfal* for grammar work and composition. Second year, English is required of every student who has completed first year English four periods a week throughout the year. Third year English is required of every student three periods a week, and fourth year English is required three periods a week throughout the year. This amounts really, in the language of the Regents office, to the acquirement of 12 counts, or the equivalent of three years' work; for you notice in the third and fourth years there are only three periods provided for, making practically but 15 periods of English weekly.

With regard to the veterinary student certificate, law student, dental student, etc., I am inclined to think that those requirements will be left to the courts to decide, unless the academic principals deem it best to add to the requirements of the suggested course as given in this pamphlet. However, the courts decide the requirements for these professions.

Another point to be considered in your discussion this afternoon is that no foreign language may be substituted for English. A word or two on that, because one of the members of our committee seriously objects to signing the report; and in justice I should explain in behalf of Superintendent Kennedy, whose name is on this report, that he is absent in the west, and that he differs in a very marked degree from this report. He says with great emphasis that students should be allowed to substitute the study of a foreign language for that of English in obtaining credit for English on credentials. The other members of the committee differ from him in this respect. I should also say on behalf of Mr Kennedy that he advises the continuance of the parallel courses, for which there is no provision in this report, i. e. the courses in advanced English and English composition. The committee very largely think that, if examinations are given in January and in June on the work of each of these four years, all that is obtained by the separate study of advanced English and English composition will be obtained by the study of first year English, except where the courts require that for certain professions advanced English and English composition shall be offered.

With regard to this suggestion, that no foreign language may be substituted for English, I think I may say without violating any confidence that I have learned from the Regents office that over 2800 diplomas were issued last June, and that only four were obtained by offering a foreign language instead of English, and even for these elementary English was required; whether first year English and second year English were studied without obtaining the counts, I do not know. Now if there were only four out of over 2800 diplomas so issued, I think the plan of the committee that no foreign language be substituted for English is a good one.

I wish you would think with some care on the time allotment in the report, whether you are ready to demand that this time allotment shall be required of every student in first, second and third year English, or whether there shall be some deviation from that on account of students coming into many city schools in large numbers and into the rural schools the first of October or the first of November—bright students, strong mentally as well as physically, and studying much at home—whether we should excuse a time allotment to these students. They would lose of course eight weeks.

The committee offer this report, differing from one another in some of the minor details, but it is hoped that, by the discussion here today and by the letters that may be received by the officers of the committee, these minor details or differences may be removed. I may suggest that some of these differences arose over the study of grammar—whether it should be studied as grammar and continued with emphasis during the first year or not. The committee on elementary studies wishes to strengthen the elementary English required for the preliminary certificate. If that can be done, if the teachers of the State are willing to have elementary English strengthened by adding something of the work now done in the study of literature and in advanced English and English composition, then there will be no difficulty in having the high school student take up almost immediately the principles of composition and rhetoric and the study of literature. One thing emphasized here I wish to call your attention to, that oral expression should include pronunciation, and out of that come reading and speaking, the basis of oratory; for it is a fact that many students of the State of New York are not good speakers, are not in the habit of speaking with distinctness, not capable of good thought and of expressing thought well. It was my pleasure a year or more ago to stand in the presence of the board of education and listen to agents who were presenting their wares to the board; and I was agreeably struck with the clear pronunciation and the excellent language of one individual, who was presenting in the best possible manner the wares which he was offering, and the thought occurred to me in a moment that he would be a successful agent, because he knew how to talk readily, distinctly and with emphasis to the business men with whom he came in contact.

Under the head of rhetoric this report says that there will be no formal study of rhetoric. That may be objected to by some members of the committee, as well as the other statement that there will be no separate study of formal grammar. The members of the committee differ somewhat in these two respects. With regard to literary interpretation, all of the features that are usually connected with the study of rhetoric are emphasized, and there will be an attempt to induce in the student a love of literature because it expresses the life of the time in which the literature was produced. Literature and history go largely together.

To the middle of the 13th page the report of Dr Kellogg and the report of Dr Hart agree largely, and Mr Marvin agrees also in parts, but from the 13th page through to the end the arrangement of the years and of the literature is largely the work of the secretary. The report is offered to you now for your consideration and for your discussion. The committee awaits your direction, and any member of the association has the privilege of speaking on the report.

Prof. Brainerd Kellogg—I am one of the committee who differs in some respects from the report which you have in your hand, and I wish to present my reasons therefor. I wish to say as my opening word that the wisdom of printing the pamphlet in yours hands and calling it "The Proposed Course in English" before anything whatever has been agreed on by the committee, before we have even agreed to disagree on anything, is open to serious question. I wish to say also that the propriety of prefacing the so called "proposed course" with a letter from Prof. Albert S. Cook, of a great university, seemingly in order to influence your opinion in favor of it, is open to still greater question. The credit for these two things belongs of course to the secretary of the committee, who modestly claims to have prepared the pamphlet, though there are in it many large footprints which the secretary's shoes do not fit and fill.

Now for my strictures on the pamphlet itself. I would eject from the four lists of selected texts many works unworthy of a place there. The impression of the pamphlet as a whole, I fear, will be that nothing but English is taught in the high schools of the State. I would prune away from the pages of the pamphlet many trivialities and reiterations and the mass of verbiage with which it abounds. 1000 words can easily be spared to good advantage to those remaining and to the thought they express. I should hesitate long to append my name to the pamphlet as a piece of literature.

But my one insuperable objection to the pamphlet is that it masses the whole study of English under the interpretation of literature. Teachers are to teach it all in teaching this. To my thinking the cardinal principle in *all* education is gradation. We can not fly at great whales with any well grounded expectation of subduing them. Divide and conquer is still a wise precept. Things can be mastered by pupil or adult only when taken up one at a time and with his whole available attention centered on each in succession, the preparatory preceding those for which they are a preparation. Each subject thus got under foot raises the pupil to the level of the next, which is now no more difficult for him than was the preceding, but which, without his having mastered the preceding, would be quite impossible to him.

All the truths of grammar, rhetoric and composition are in literature, but they do not constitute literature. These studies deal with the expression of thought; literature with the thought itself. It is composed not of facts but of thoughts about facts, of facts worked up into thoughts tinged with emotion and appealing to the imagination. The significance of these thoughts, their scope, their truth, and their ministry to the intellect, to our æsthetic nature, to feeling and refinement, and to conduct and character, their application to life in all its phases, their inestimable value as reflecting the author's environment and his reaction on it, and the revelation they thus make of the authors themselves—these form the staple of literature, and justify its protracted study in the curriculum. In literature constant reference must be made to the expression, for this embodies the thought and helps to make or mar it. Its correctness or incorrectness in single sentences, in paragraphs and in themes, its clearness or its obscurity, and its thousand other felicities or infelicities should be dwelt on and emphasized as found in literature, but literature should not be degraded to the sole teaching of expression. This can not be done without inverting the natural order, sacrificing the sovereign to the subject, the end to the means. The teaching of all four, in the teaching of one, is, to my mind, therefore, highly illogical.

Moreover, it is impossible of achievement by those to whom the teaching of English is committed. Mathematics is as much an "indivisible subject, not to be broken up into parts" as is English. When convinced that the easiest and most thorough way of teaching common fractions and quadratics is to plunge the beginner into the calcülus, I shall be open to conviction respecting this new method of teaching grammar, rhetoric and composition. Almost anyone can drive single; who is competent for this four-in-hand? I am not. What principal or college professor here is? If any such professor resents the question and its implication, I fear he is biased in his judgment by his success with students who, before they came under him, had outgrown the immature English of their earlier school days.

But, in whatever way taught, all agree that the essentials of these studies must be thoroughly taught. Can this be done by the "student's having in his hand a textbook for reference only"?

Shadows of their all important truths might thus rest on him, but their substance would not enter into him and mold his work. For be it remembered that these are practical studies, of *no* worth unless lodged in the mind, and of little worth there unless they work down out of memory into one's tongue when he speaks and into his fingers when he writes. The pupil must long be face to face with their principles, to become familiar even with the terminology. The teacher can not correct the pupil's mistakes in agreement, in the form of words used, his misuse of the parts of speech, his mixed imagery, his obscurity, his violation of unity and coherence in paragraphs and themes etc., etc., without using many of the terms of grammar and all the terms of rhetoric and composition, with every one of which the pupil is unacquainted, terms as needful as *dividend* and *subtrahend* in arithmetic; or exponent, coefficient and binominal in algebra. Where is he to learn what these terms signify, that he may understand and heed the criticism? Surely not on the pages of the literature he is studying. It must be from the teacher himself, and as occasions for this instruction happen to occur there. In other words, the teacher must stop and turn away from the real teaching of literature to explain and to teach *ab initio* the things relating to expression as they accidentally appear in the literary text without order or proper consecution. He must turn aside from what in literature are the weightier matters of the law to the tithing of what is there only mint and anise and cumin; and to the doing of this, remember, in the irregular and fortuitous and *hýsteron próteron* manner in which the pages of literature present them.

But, even if their truths could be taken up *methodically* by the teacher in literature, he could not teach them as thoroughly *out of* as *in* the textbook itself. Does he know as much of these arts as do the authors who have made a lifelong study of them and of the proper way of presenting their truths? Their books contain defects, surplusage, faults even, but, even if slavishly followed—as they are not—I am persuaded that by a study of them the pupil would be immeasurably better prepared for writing and for the study of the writings of others than if he depended entirely on literature for his instruction.

The conclusion to which I am irresistibly driven is this: grammar and rhetoric and composition and literature can not be taught well at the same time and from the same text. Any attempt to do it will end in teaching none of them thoroughly—each distracting attention from the other and defeating real instruction in it. But I have said, and I here reiterate, that literature may powerfully reinforce the teachings of the other three, every illustration of their truths found there driving more fully home the nail already driven in.

Now, while these are my profound convictions, I do not ask to have them embodied in the report. I plead only for this—a plea I made in vain to my brethren of the subcommittee on English, that the report finally approved and recommended by you for the syllabus of 1905 shall simply recognize the indisputable truth that in the high schools of this State diverse views are held respecting the proper methods of teaching English—one class of teachers believing that grammar, rhetoric and composition should be taught exclusively in literature, the other believing that they should be taught separately and as prefatory to literature. I ask simply that the coming syllabus shall contain nothing in condemnation of either method, nothing mandatory on this vital question, but shall leave the teachers perfectly free to use the method they can use best.

Now, striking out all that is said in the first 18 lines on page 8 of the pamphlet and the first six lines under rhetoric, page 10, I would insert under the heading Introductory on page 8, these two short paragraphs:

All the principles of grammar, composition and rhetoric are illustrated in literature. It is from literature that textbooks on these studies derive their truths and their warrant for inculcating them. Many, therefore, do not regard the study of the first three as a necessary preparation for the fourth, but think that their essentials can best be learned in the study of the fourth alone. They would not, then, teach grammar, composition and rhetoric separately and as an introduction to literature, but in the high school course would teach them all in literature itself. These teachers will find below full suggestions for their work.

Others believe that grammar, composition and rhetoric can not be taught thoroughly in this way. They believe that, while the four are the components of one great whole—English, they are yet so distinct in methods that any attempt to teach them together will issue in teaching none of them well. Such persons would, consequently, have the four pursued separately, and the first three as preliminary to the fourth. But they insist that the principles of grammar, composition and rhetoric may be more deeply lodged in memory and in practice by the illustrations of them found in literature. Hence, to this class of teachers, as to the other, the suggestions below are pertinent.

And I would provide for those who wish to teach these three studies separately by saying that time for grammar may be taken from that allotted to first year English; time for rhetoric from that allotted to second year English; and that the topics of composition may be studied in the textbook as they are suggested by the literature of the course.

Principal Lovell—I may be able to clear the atmosphere a little. Dr Kellogg has differed earnestly and emphatically and yet in a most friendly way from other members of the committee in our discussions in private; and yet, after all, if you will study the tenor of the remarks at the close of his report, that difference is not so large as it might seem, if the atmosphere be cleared. Dr Kellogg says grammar should be taught, rhetoric should be taught, composition should be taught. The report emphasizes all this. Dr Kellogg submitted his original report to me, at least 13 paragraphs of which are included in the first pages of this report. While Dr Kellogg differs widely from other members of the committee on the four points to which he has referred, there are many things regarding the treatment of the various parts of the literature work that are really his own. So in your discussion do not think that the committee are divided as to the whole of this, but only as to the parts presented so earnestly and so forcefully this afternoon by Dr Kellogg.

Dr J. M. Hart—To be entirely frank, I feel personally at a great disadvantage here. To begin with, I am not a member of the association. I have attended three of these committee meetings, and every time I ask myself the question, What am I here for? I did not ask to be put on this committee; my name was inserted in making up the committee without my knowledge even. Since I was put on this committee, however, I have tried to do what I could to solve what is at once a very simple and yet an exceedingly puzzling question. In undertaking to speak on it here, I can only indicate certain lines of thought on my part.

Permit me to say, once for all, that I must ask you to disabuse your mind of any prejudice against me personally. I use the word prejudice in the most literal sense, "prejudgment." I am not speaking in behalf of Cornell University. I am not officially interested in more than a very small fraction of the boys and girls of the State of New York. Cornell University is large enough and strong enough to protect itself, and it has protected itself up to this point by accepting only the best Regents course hitherto offered. If the Regents offer a better course, we shall take that. If, however, the Regents do not see fit to improve their English course, possibly (I do not say certainly) Cornell may decline to keep along with the Regents on this subject, may say that she will enforce an entrance examination. Still I am not speaking in behalf of Cornell University. I am interested, not as a professor but as a man, in the boys and girls of New York State. I am perfectly aware that less than 10% of the boys and girls in the high school ever see an institution of so called higher learning. Am I right in saying that at least 95% of those now studying in your high schools, public and private, never get beyond your graduation? Now what is to become of these 95%?

The question which I wish to put to you is simply this, Are you doing your best for these boys and girls, not are you doing your best for Cornell? Put all the colleges aside, and think of the fathers and mothers of your boys and girls. Are you doing your best by them? That is the sole question which ought to concern you all.

If I were merely a college professor, perhaps I might hesitate to give an opinion or offer any suggestion. But, fortunately or unfortunately, I am not a mere college professor, as the superintendent of the *Ithaca High School* will say to you very frankly. I know what the workings of the Ithaca High School are in English, for I have taught his classes myself. I have taught the Ithaca High School college entrance English and I have taught the second year English. I am now teaching two of its pupils privately. I know intimately the kind of work they are producing. Therefore, when I say that work is imperfect, my judgment does not rest on the work in the college entrance examination, it rests on the observations which I have made in reading hundreds of Ithaca High School papers in the last five years. I know exactly what these boys and girls can do and what they can not do.

You have listened to the remarks of my predecessor, who has prepared an elaborate brief. I do not see the use of elaborate briefs in this meeting. We are not arguing a question of law, where it is necessary to submit all the points in writing. We are here to present ideas; and such ideas as I have I will present to you as they occur to me. I certainly am not a college professor who deals only with mature minds. I have taught very baby minds. I have read a good many baby papers. I have read papers written by persons all the way up from 10 years to 60 and I think I have pretty well familiarized myself with the defects of ordinary English expression. So far as my own views are concerned in the pamphlet before you, they cut really a very small figure there. I think that two pages of print would represent all my contribution. I am quite certain that, if you cut out the regulations about the Regents certificates and all the, to my mind, quite superfluous list of so called collateral reading and take the remaining pages of the pamphlet, I think that about two thirds would represent what Professor Kellogg wrote. Yet he has a brief and I have none.

Members of the Associated Principals of the State of New York, you may talk as much as you please about syllabuses and systems and passcards; but, if you want to solve the English question, there is just one thing for you to do and nothing else, and that is get your *teachers* of English. I do not mean men and women who go through the form of drawing their salaries and correcting so many papers; I mean real live men and women who are *vitally interested* in English grammar, English composition, English literature. Get the right sort of teachers and let them do the work and let your systems go. I am for the full play of individuality. All I would have you do is to take the books prescribed for college entrance English, and make the most of them; not that they are the best books, but because they are a good list of books, and because some of your boys and girls are going to college. Give all your students the same reading. Spread that reading over four years. Give them plenty of writing in connection with the reading, let the writing be corrected for bad grammar, for bad composition, for crude literary expression, and at the end of four years say: Good by, you have learned your English so far as we can teach you. Let the teacher solve the question of the How; you are to ask solely for results. The question is simply this: Shall you get our boys and girls interested in the great English and American authors? That is one point. Shall you get them interested in learning how to put down on paper in coherent, readable shape their ideas, whether original or commonplace? That is a second point. Shall you root out the bad habits into which the young are always liable to stray? That is a third point.

I repeat: give your students four years of such liberal discipline in reading, writing and correction. The further question whether the teacher is to use a textbook in rhetoric or a textbook in grammar is wholly secondary; to my mind it matters little or not at all. If you have the right teacher, you will get the desired results. If you have not the right teacher, it makes no difference whether you prescribe grammars and rhetorics or not. If you have not a good teacher, you will not get good results; not even from the study of Shakspere or Milton. The main thing is to get rightly trained teachers of English in your schools, and, when you have your teachers, the problem will be solved nine times out of ten.

Now I have nothing to defend or apologize for in this pamphlet. It does not represent me exactly. There are a great many sentences which I should strike out. I should merely prescribe four years of reading, writing and correction—the reading of standard authors, plenty of practice, etc. I should leave everything to the

595578

judgment of the individual principal and to the instinct of the individual teacher.

Just one word on the subject of grammar and rhetoric. Am I such a tyro on the subject of English grammar? I am now upward of 60, and it seems to me I have been studying English grammar for half a century. My personal fad is the historical study of the English language. It is the study above all others which interests me most. I am almost prepared to admit that the analysis of a difficult form of English is to me more interesting than the mastery of a difficult thought in Shakspere or Milton; certainly as interesting. Yet, if you will allow me to say once for all very briefly—this is the first opportunity I have ever had of meeting collectively the principals of the State—will you allow me to ask, What is the earthly use of inflicting all this on your boys and girls? What is gained in the power of correct expression by drill in rhetorical and grammatical shibboleth? Certainly I myself have gained nothing by it. All my ability in writing, however great or small it may be, has come from studying English authors and trying to imitate them. If any of you ever hope to shine in the firmament of literature, that is your only way, to read your English authors and try to follow in their footsteps. That is all you can do.

I will narrate to you the experience of one of my own Cornell instructors, an Ithaca boy who passed through the schools of the town and the high school, came to the University and took his first degree there and afterward his Ph.D. He is of the whole staff perhaps the one most devotedly literary. He is certainly the one who exercises the strongest personal influence on the students of his sections. Listen to what this young man said to me on the question of rhetoric and grammar. Happening to see something like this pamphlet which is before you, he looked it over and exclaimed impatiently: "What is the use of all this grammar and rhetoric? Here I am teaching English as a Cornell instructor. I passed all the Regents examinations in grammar and in rhetoric, yet I was permitted to say every day of my school life, 'I done' for 'I did.'"

If you have to choose—and I think that for very many of you the choice is inevitable—between saying "I done it" and neglecting the rules of formal grammar, my advice is: Neglect the rules of formal grammar. After all, if your boy or your girl can not speak correctly, can not observe the decent usage of the best educated men and women, if the boy or the girl has not learned to follow that usage, of what earthly use can be all the grammars that ever were printed in the English language?

Principal Lovell—You are all aware that the students come to the high schools from the lower departments of the schools at the ages of 11, 12 and 13. One thing that has influenced the minds of the members of this committee is the question, Are those minds mature enough to banish all thoughts of grammatical study and to enter into the intricacies of composition, rhetoric etc.? We must keep in mind in our discussion that this age is usually the limit of the eighth grade. These pupils have not the mature minds which you meet with later in the high school course. I think I may say for Dr Kellogg that he would not insist on the study of the intricacies of grammar and analysis and of the earlier parts of rhetoric by a student in the third and fourth year.

Dr Hart also agrees with about 13 or 14 paragraphs in the first 13 pages, with Dr Kellogg and myself. I have cut out (28th page) the introduction, and I have cut out (28th page) under the term "Grammar" the first three lines. Near the bottom of this page it says, "Textbooks on English grammar should be in the hands of the students." I have struck out the words "for reference" in my own copy of the report. And on page 10, first line, under "Rhetoric," I have erased from my report commencing with the words, "Today the best teachers of English recognize the fact", etc. On page 11, at the end of the first paragraph are these words: "Textbooks on composition and rhetoric should be in the hands of the students." It does not say there for reference; the words "for reference" are cut out.

Please take the ideas presented by the members of the committee and by the chairman and consider them. If possible, give to any member of the committee or write to the secretary or myself your criticisms on this pamphlet, and we shall be very glad to receive them. If it is the sentiment of the high school principals of the State, that grammar should be emphasized during the first year and during the second year, that will be fairly considered. But remember that the underlying principle is not the study of grammar after all. When you come to read the pamphlet, you will find references for study from literature relating to marked infelicities of speech, etc. If you think that the purpose can be better accomplished by the continued study of grammar, let us know the fact. We leave this for your consideration.

Prin. Arthur Marvin—I want to say just a word as secretary of the committee; I have the misfortune to occupy that position. You have all seen how difficult it is to drive a four-in-hand. There are some things in this report which I personally do not approve. The only idea in submitting it has been simply to place in your hands something definite, in order that there may be an intelligent discussion of the matter at your leisure, and in order that we may as a committee find out if possible exactly what sort of English, if any, you would like to have taught in the State of New York.

Just a word on the subject of grammar. Is there any one in this audience who can direct me to a textbook in English grammar which you individually can recommend for use in a high school? I do not know of a single one. The English grammars which I have reviewed (and I have reviewed a number of them) differ as widely as do various members of this committee. When it comes right down to the point, what sort of guide shall we put into the hands of the students? Moreover, how many of you have learned how to express yourselves orally or in writing through the medium of the study of English grammar?

So far as rhetoric is concerned, look at the textbooks on composition and rhetoric that are coming out constantly. If composition deals with expression, rhetoric may be said to deal with *effective* expression. It strikes me that there are two things only to be done in the work in English; first, to teach the boys and girls to express themselves correctly, and second, to inculcate a love for literature.

Sup't F. D. Boynton—I am authorized by Secretary Parsons to announce that the Regents will print all of the reports[1] of the various subcommittees of the *Academic Syllabus* committee, together with the report of the committee, if completed in time, as an appendix to the minutes of this conference, without expense to the conference. The syllabus committee wishes to express its appreciation of the generous proposition made by Mr Parsons to aid the committee in the distribution of its work among the principals and teachers of the State.

As many of you are aware, the work of the syllabus committee has been divided into nine parts, each in charge of a member of the central committee with four assistants. In this way, the studies have been confined to a limited field; and it is the plan to furnish full reports of the work, including discussions and objections, to the principals of the State. Your committee asks that, on the receipt of the report, you make a careful study of the same and come here one year from now with criticisms carefully formulated and matured.

Prin. C. W. Evans—The matter of which I wish to speak does not properly belong to any other time or place than the present. A little while ago a distinguished official of our government retired from service, and his official superiors were criticized because they did not make him a parting acknowledgment, even though serious differences had long existed. It would be a mistake, I believe, on the part of this organization to allow anything of that sort to be done in the case of one who has had so long and honorable a term of service, that has been highly agreeable to everybody concerned. The success which has been achieved by this organization is due more largely to S. Dwight Arms than to any other man living. For the past 10 years he has served us faithfully, efficiently and effectively as our secretary. During the trying times through which the educational interests of this State have passed he has been absolutely fair in all his dealings. He has represented no one except the Associated Academic Principals. He has stood for nothing except a high and worthy conception of his official duties. For the past five years to my certain knowledge he has desired to be relieved from the burdens of his office, and he has put his desire aside and continued in service only at the earnest request and pressing solicitation of other officials who desired to retain his services. He has been faithful to our interests. He has done great things for our association, and therefore I move that a vote of thanks be extended by this association to its retiring secretary, S. Dwight Arms.

---

[1] The report on high school English [361] was the only report received when these minutes of the conference went to press.

Motion seconded by Prin. J. E. Banta.

This motion was unanimously carried.

THE PROFESSIONAL STATUS OF SCHOOL MEN

Prin. Howard Conant—Having had in mind certain sentiments along the line of professional comparisons, I submitted this question to our worthy president. He was considerate enough to give it a place on the program. The subject may suggest to you many phases, not alluded to in this paper. There may be room for considerable criticism. I do not care to say that any plan I may suggest would be at once practicable. I do believe, though, that, even if you regard the ideas as fanciful or impossible, you can hardly call them trite. We live in a world that is called grossly material. Shall we render ourselves unworthy of the highest educational value by considering this subject from a material standpoint? We need, like all other beings, the necessities. We want and should have something more. We meet together here every year and discuss many questions pertaining to our school work. Seldom if ever do we consider questions that unite us outside of the schoolroom, questions pertaining to our material profit. To my mind there is nothing unprofessional in considering vital questions that have to deal with our happiness and well-being apart from a pedagogic significance.

What code of professional etiquette have school men? Many pages are written in our educational papers. Many volumes are full of advice, admonition and encouragement to the teacher concerning the orderly arrangement of school programs, the punishments, rewards, benefits and sufferings of those under our charge. We are constantly told that we must be as harmless as doves and as wise as serpents. I sometimes think that, in trying to become as harmless as doves, we stop and make it squabs.

We are also told at great length the factor we should be in our community, how the social, church and fraternal life of the place should revolve around the school man as the center. We often become even a little "chesty" and think we are filling a place which we were centuries ago predestined to occupy, when, alas! we wake up some cold morning to find we are just poor school teachers, whose term of employment can not, according to a wise (?) provision of the State, exist for more than one year.

Can there be a professional status of any pretension of school men as long as the material conditions surrounding them remain as they are? Can we, as long as the present method of employment of teachers obtains, expect to raise materially the standard of our profession? I know that there are men who are as secure in their positions as though they were appointed for life, but they are glaring exceptions. These men are spoken of with bated breath and subconscious envy.

The school man owes it to himself and his fellow workers to strengthen the organization for school work with which he is connected, so that it will become the power for advancing him to a professional position which will not compare unfavorably with that of other professions or trades. The idea of a union is repulsive to many as containing elements that characterize gains for pecuniary reasons only. But a union in a higher sense, one that has for its object other than material benefits, but does contain this plank in its platform, the doctrine that the labor is worthy of its hire, is what we do need and is what some day we shall have. The teaching profession is strong enough and large enough to have a well-paid, competent man in each organization devoting his entire time to the multifarious duties now performed with little method and often with less reason. We should have some definite principles written boldly on our banners, so that he who runs may read and work for their happy consummation.

The first thing that I believe should be placed where all may read is this: a term of office for teachers which comports more with the responsibilities of the position. This is about all that I should advocate at present. Many things more anyone of you may now have in mind, but let us take the one on which I think we can all agree, and let us not confuse it with various other issues, whether pertinent or impertinent to the proposition. What other class of employees are employed for one year and one year only? Whom can you find in other vocations, where training, experience and education are required, that is discharged if not re-employed every 12 months? No matter how conscientious, how faithful, how successful the teacher may be in his work, some body of men must tell him every year whether or not he is wanted again for the next year. Is this good business, is it good sense, is it fair? What we need more than any other one thing, to give us a just and proper professional status, is a proper tenure of office. I believe that no one thing would more quickly straighten up the shoulders, bring new light into the eyes, than the contentment that would result from a greater permanence of office.

This does not mean that we are trying to force ourselves on our localities as unwelcome and uninvited guests, but that we should like to consider ourselves something more than mere transients, that we are a part of the school system of the place, that we can do our work much better and more intelligently when we know that we are more like the realty than the movable property. I am not making a plea for incompetency; no one can hold a position after his usefulness is gone. School men are, if anything, over-sensitive. Few of us care to continue our residence in a place where we are not desired. But many a good school man, and woman, here today has been sacrificed to the whim of some politician, who has an imaginary grievance that can be satisfied only by the school teacher's going.

Not many months ago a subject was placed on the program of a teachers association in this State, a subject, I believe, that had never received the consideration of an educational body. It was, "Shall we have a teachers union." Strong objection was made by some present as well as by letter from those unable to attend. It was said to be too harsh a term, too much savoring of the walking delegate and the boycott method. With such a name attached to an organization we should step from the professional atmosphere into the ranks of laborers. All those elements that arouse distrust would be combined in any such federation. The general opinion prevailed that, whatever we need or want, certainly no union.

The subject was stated in the form given chiefly to provoke exactly this discussion. A suggestion was made that we have some stronger organization of school men. Let it be one like the present association more firmly united or some new society advocating the same beliefs. Now there was a common, harmonious ground for discussion. Several members present said that these ideas had often suggested themselves, but never had they heard the subject discussed. While the commercial and labor world has seen the benefit and necessity of centralization and consolidation, those in the professional ranks have excluded themselves from these rational and economical conditions. By an elevation of the members of society, society itself becomes raised, by an elevation of society the individuals. It is both a synthetic and an analytic process. The logic is not disturbed in either proposition. The rose, it is said, would smell as sweet called by any other name. So a teachers union would do as much, possibly more, called by a gentler name. What we want is some form of affiliated relationship that will make us all aware constantly that there are *other* men teaching in this State, that they are meeting the same problems, that they are alone in their professional life in a vast majority of instances. To give these men strength and the courage of their honest convictions, they should realize that back of their actions is every school man worthy of the name, not there as a challenge to the community, daring them to molest their employees, but there to encourage, befriend and uphold honorable actions.

The contract with the teachers is generally entered into on conditions entirely determined by the school authorities, and this is in the main fair. But the preliminary steps leading up to the engagements are also wholly judged by these same authorities. Is it not fair that a school man should know something of the new environment in which he is to be placed? Should he not know the circumstances connected with the resignation or dismissal of his predecessor? Should there be a hurried grasp for positions made vacant by the unfairness of the board of education or by the honest activities of the principal? Should we accept a position at a salary that a day laborer scorns, simply to get started?

In my mind, some school organization that is conducted on a strictly professional and business basis will some day be formed. There are many other matters that such an organization might be concerned with. It would not exist simply to act as an information bureau or a business alliance. It would have in view that the school man has a place in politics as well as his neighbor; that, if legislation increasing his efficiency and permanency is a grand thing for a Greater New York city teacher, it is the same grand thing for the humble but equally deserving country brother or sister. The secret of success is persistency. No one person can be persistent enough to get the machinery of legislation under way. What was at one time done by one individual needs now the combined efforts of many, to make a movement carry any considerable momentum.

I would, however, before attempting further organization, use to the utmost those associations which now exist, remedy or check certain tendencies that might be called unprofessional and build on what we have. The foundation is good. The school men seem unanimous. There is a feeling of separation and loneliness all along the line. One man in a locality exists, professionally, as though he were the only school teacher alive. He may use the mails till he arouses suspicion, he may read educational papers till he is blind, and yet the howling wilderness of a Sahara seems as a throbbing center of populated activities compared to his solitary school life.

This is not the condition of one man, it is the almost universal life of school men. We come together annually in meetings of this kind and go home feeling from 1 to 6 inches taller than when we came here. We realize that there are other men fighting the same battles, performing the same duties and holding some of the same ideas as ourselves. If, out of a meeting lasting as it does but two days, this fraternal spirit is aroused and strengthened, what would be the result for ourselves professionally and the educational work generally if these ties, reunited or more strongly fastened, not merely could continue for a few weeks on our return to our respective homes, but be still strong when we again meet in conventions? I believe that few of us realize that associations of school men should have other functions than planning programs and holding meetings. These are essential but not all-essential. We think of this association as one that simply holds a meeting at Syracuse. The work in preparation largely falls on one man. It is work that can be done by one man and done well, as all of our meetings have shown. Is this enough for our council to be doing? We have a membership of 700 or more, made up largely of men all able to work and men who work as no other professional men are obliged to. If the combined energy of these 700 members could be used at certain times to effect favorable changes in our welfare, what do you imagine the result might be? You know as well as I.

To bring about some action of the convention looking toward one step in our professional advancement, a motion will be presented later to the house for its consideration.

The standards of our profession may be raised in two ways. One by ourselves; the other by outside influences. The first I have discussed. The other way is at present receiving considerable attention, by requiring the passing of uniform examinations, by a broad literary education, by professional study. Did you ever hear teachers complain of added requirements by school authorities if proper compensation was given for these changes? I would say to the authorities: Raise the standard of our profession as high as you care to, then give us emoluments consistent with your demands.

Take up any book describing the qualities expected of a teacher, ponder over the ideal suggested, recount the virtues enumerated, the good deeds. Where can we find even one who approaches this typical pedagogue? Where shall we be able to obtain wealth enough to secure his services? Shall we ever be granted the privilege of living for any time in the same community with him? Then let us come down to the plain, cold fact. Many a good man is engaged in school work where he has no knowledge of the day or hour when he shall be bidden to depart. He is working on a salary out of which he can barely save enough to pay his moving expenses. He may possess the virtues of a god and the wisdom of a Solon, but Hickory Creek must have a change.

We as an association should no longer be party to this disgraceful and unprofessional condition. We give much thought to national and state education in the abstract, to local education in the concrete. Not enough time is given to doing what must really be of the most benefit to our vocation as a profession.

That more attention is being given to this phase of teaching, if you care to call it so, is evident. Increased space is given to the material side by at least two well known educational papers, one having now a regular department entitled "The Professional and Financial Side," the other devoting several columns for a number of weeks to teachers' salaries. These are simply illustrations showing the condition that is being enlarged on and emphasized.

Some truth is found in this statement, "We are still far from the goal of professional feeling among teachers. There is still too large a preponderance of small and supersensitive people among us. Loyalty to the profession and to one's professional superiors and colleagues is not yet as general a virtue as it should be." But I believe it an exaggeration. Try as we may, we shall never be perfect. A strong bond holding us will increase that loyalty, that spirit of fraternity that now may be obscured. It is a glowing coal ready, I think, to be fanned into a brilliant and steady blaze.

This may sound as if I cared to recatalogue teaching, taking it from its sphere of influence and classifying it with sordid or mercenary occupations. I believe that, if you have followed this paper, you can not fairly arrive at this conclusion. I do not ask you to decrease your study of methods, your investigation of child study, your rhapsodies over the latest easy road to wisdom;

in fact, no fad nor fancy, no ideal nor idea, do I ask you to leave behind. We need more of the constructive, less of the destructive policy. The school man has a right to ask that he be ranked with any of the learned professions. He has the right to stand up and demand what he knows to be proper and just. He is no mere puppet obeying the whims of every prejudiced constituent. It has been said that the schoolmaster is a cross between an automatic machine and an iceberg. I believe him to be a rational being desiring only rational treatment. This is what I ask for the school man. Then we shall have no misunderstanding as to his professional status.

Prin. C. L. Mosher—As I had not the opportunity of carefully studying Mr Conant's paper, perhaps the line of my thought on the subject is a little different from his, though in the main I agree with the points he has brought up. In the matter of professional etiquette, surely there is need of definite and careful courtesy among teachers. To illustrate: I know of a case where one man obtained a position by offering to accept it for $50 less than another applicant. There is certainly nothing professional in such methods. If there is to be such a thing as a profession of teaching, there must be consideration on the part of every teacher for every other member of his profession.

A tenure of office for teachers would certainly be an advantage. However, I think there is less immediate danger through lack of it than might seem. Boards of education gladly keep possession of good teachers, and are slow to run the risk of filling their vacated positions with persons who may prove inexperienced and incapable.

One thing which Mr Conant mentioned was the loneliness of the teacher, and one of the members sitting near me suggested that a very good cure for that would be to get married. I do not know whether he has tried it or not, but I presume it would be a successful cure in many cases.

It seems to me that if there is to be a professional status for teachers, there should be a feeling of unity among teachers as such. If a teacher does his work and does it well, it makes no difference whether he is teaching little children or is teaching older children or is teaching young men or women. If he is doing his particular pedagogic work and doing it correctly, he should be considered on a par with all other members of the teaching body.

It would improve the professional status of teaching if persons who establish private schools were compelled to some definite requirements. To be a lawyer, one must have been admitted to the bar on examination. To be a dentist or a doctor, one must satisfy certain requirements. It is unprofessional that any one may start a school who desires, if he is able to get pupils to attend his school.

There may be some value in considering the way in which the members of definitely recognized professions gain their professional status. The only professional status for the teacher comes to him as an individual. He gains it because his individual reputation, his position and his work are broad enough to win it for him. He does not gain it because he is a school man. The reason is obvious; school men range from the greatest educators in the land to those who have completed half the high school course and are now teaching a district school in order to be able to finish that course. They are all school men, but this does not bring from the public the same recognition for all, because they have not all had equivalent training. When you know that a man is a lawyer, you know that he has passed through a certain general training needed by a lawyer and has been on examination pronounced competent to be one and the same is true in any of the professions. These men gain their professional status by uniformly doing some one thing. Teachers could gain a professional status if there were a higher credential or certificate or diploma granted by some proper state authority which would show that the holder has had successful experience in teaching and has established himself to the satisfaction of that authority as an able and useful member of the teaching body. I would distinguish between such a certificate and a license. A license one must have in order to teach at all, but I maintain that no man is a teacher when he begins to teach. Experience is necessary; and I would offer this other credential only to teachers of experience and on examination.

Surely, if a teacher could present to a board of education such a statement of ability and successful experience from the highest state educational authority, he would command their respect as a member of the teaching profession and would have a "professional standing." If such certificates were offered, the holders of them would form the nucleus of the teaching "profession."

Prin. A. J. MacElroy—With reference to tenure of office, in the first place, the State of New York (that is the upstate part) is in danger of losing its best school men and school women to the city of New York, unless some measures are taken with reference to tenure of office, and possibly to increase of salaries. I make no criticism on our great metropolis, but it seems to me that the great State of New York has a question that is worthy of consideration, and that no more important matter can be brought up than the matter of tenure of office.

Second, with reference to the professional etiquette of school men. The attitude which principals and superintendents oftentimes take toward their teachers is not thoroughly in accord with professional etiquette. I know of instances where good teachers have lost their positions because of the whims of superintendents and principals. That is a matter for reflection. The means resorted to by school men in securing positions is too frequently unbecoming to the profession. We often hear of men underbidding in the matter of salary in order to secure a place. Then, too, besides the unprofessional behavior of school men in securing positions, in many of our rural schools there is very little professional etiquette in one particular at least, viz, that many principals, anxious to build up their schools and overzealous to secure students, go into districts of other high schools or union schools and run down the standard of those schools in order to secure their students. You can draw your own conclusions.

I believe also that many principals forget what professional etiquette is when they succeed a man who has had hard luck, as we sometimes say, and drop some unjust or careless word, running down his reputation as a school man, etc. I believe that some of these things are done unconsciously by school men, but they are things that we should be innocent of and reflect on.

Then, too, a great many school men or teachers, when they get into a town, begin to run the town down, begin to " knock ", as it were. How in the world a man can expect to succeed by everlastingly " knocking " the town of which he is a component part, I fail to see.

Principal Conant offered the following resolutions:

Believing that the present system of annual appointment of teachers throughout the State is unbusinesslike in principle, detrimental to the best interest of our schools and tends to humiliate those engaged in teaching, and knowing that legislation has effected a more permanent tenure of office in New York city and has greatly increased the efficiency of the teaching force of that city,

Resolved, That we, the Associated Academic Principals of the State of New York, favor the formulating and urging at the next session of our state Legislature of such a measure as will give to the teachers of the State a more permanent tenure of office.

Among other things we believe the bill should provide as follows:

First, That no teacher, after serving in the same school for three successive years, shall be removed except for cause.

Second, That this act should apply to all cities, all incorporated villages, all union free school districts organized under special act of the State Legislature.

Third, That this act should apply to all teachers who have already served three years and who receive their next regular appointment.

Principal Conant—This question was discussed at a meeting of the Interlake Council of School Men held at Penn Yan N. Y. and resolutions favoring it unanimously adopted there, also by the Principals Councils held at Cattaraugus, Olean and Wyoming; and I was asked to bring the matter before this meeting. I move, Mr President, that this resolution be adopted by this association.

Motion seconded by Principal Johnson.

Prin. R. V. Spencer—It seems to me that these resolutions are strong where they should be weak and weak where they ought to be strongest. A law of this nature should be effective after a teacher has served his first year in a place; otherwise school boards would be careful to dismiss teachers concerning whose efficiency they were somewhat in doubt at the end of the second year, rather than run the risk of being obliged to go to a great amount of trouble later, in order to get rid of some one whom they regarded as incompetent.

Again, we all know that teachers, as well as other people, wear out. There should be some means provided whereby a school board could easily dismiss a worn-out teacher.

We talk much about our professional status. Its efficiency is the only claim any profession has to recognition. The efficiency of our profession will be best promoted by competition.

Legislation in this direction should aim to lengthen the term of service, but should leave competition open to the extent that the best men will always hold the highest places.

Prin. O. W. Wood—It seems to me that this term "for cause," is a weak term. Who shall decide what the cause is? The courts?

Prin. J. L. Lusk—I should like to ask if this has reference to the rural schools or simply to the village schools? If it refers to the rural schools, the members of the Legislature will put it on the shelf. You have got to do the fair thing by the rural districts or else have something that does not affect them. I do not know whether this applies to the rural districts or not and should like to ask for information.

Sup't E. S. Redman—This resolution says in the second clause, "This act shall apply to all cities, to all incorporated villages, to all union free school districts and to districts organized under special act of the state Legislature." It does not apply and those who drafted it in the first place did not intend it to apply to the ordinary rural schools. We believe that, if we can have it apply to the incorporated cities and incorporated villages and the union schools first, that it will be a great step in advance, and then, seeing the good that it accomplishes, we can extend its operation; but for the present, we do not think it wise to attempt that feature. We want the law so made that teachers, after they have served faithfully in a position for three years, can feel that they are secure in their work while performing their duty. We want them able to build up a home, plant a rosebush and feel that next July they will not necessarily have to move. Now there are a great many of us here who have held our positions for some time and feel reasonably secure, and yet in March or April there is always coming up the question of our reappointment. The firemen who protect our dwellings in the cities and towns in which we live hold their positions while they do good service. The policemen who protect our homes from robbers hold their positions while they perform their duties well. But we who are trying to teach the rising generation are subject to this annual review and this annual humiliation, and it seems to me, as has already been said, that as far as our influence goes it is time to stop it.

Principal Conant—It has been asked what the word "teacher" means. We intend that it shall mean anybody connected with school work, whether superintendent, principal or one engaged in instruction only.

Principal Spencer—I very much question whether this resolution, if it secured the legislation asked for, would eliminate the evil it is intended to. In the first place, if a man can hold a position down for three years, he says to himself there is no need for reform; and under our organization there is no authority well enough educated in general to decide this point as to whether he is competent or not.

Inspector A. C. Hill—With reference to the third clause, does that mean the same as the first clause or something additional? Does that mean a person who at the end of the third year shall be reappointed, or a person who has taught three years and had three years' experience and received the next regular appointment after he has taught one year in a school?

Superintendent Redman—That was put there at the request of people who are responsible for the appointment of teachers. There are some of us who are vitally interested in that phase of the question. There are some of us who have to deal with incompetent teachers, and we know how it comes to us as it is now. Every year, when that incompetent teacher comes before the board of education for reappointment, they say, "Well, we are sorry for her, let us appoint her for one more year," hoping that in the meantime some one will propose to her or that something will happen so that they will never have to face the question again. Now we all know some teacher who is in just that situation. We do not want to legislate these teachers into a permanent position. We want to say to our boards of education, "Gentlemen, if you appoint that teacher again, you will have her on your hands forever. None resign and few die. If you want to get rid of her, now is your time." I think we should give boards of education one more opportunity to pass on the qualifications of their teachers. It will increase the efficiency of the teachers by making boards of education more careful. That is the way it appeals to us who to some extent are responsible for the teachers who work with us.

Prin. F. R. Darling—I move as an amendment the following: No teacher after service in the same school for two successive years shall be removed or his salary decreased except for cause.

Principal Conant—I think the Supreme Court has ruled that, when the salary is decreased, he has practically been removed from office. I believe also that we should not insert too many things but work for one or two things only.

Prin. W. E. Gordon—I disagree with the gentleman at my left with reference to the matter of one year, for they have had too little experience. They come to us for the first year and that year are gaining experience. We find that, as the year passes, they improve and give promise of becoming good teachers; and yet at the end of the year we can not say that they have given excellent service, and, if it were just one year, we might be tempted to get rid of them at the end of that year. The second year we are glad to retain them, and at the end of the third year we rank them among our best teachers, and no progressive board of education desires to get rid of a good teacher and take the risk of employing another. It seems to me the resolution should be passed as it now stands. I doubt the advisability of putting in the amendment suggested.

Prin. H. D. Bacon—I do not see why it would not be just as well to make it four years.

Inspector Hill—My question was not answered, whether it was at the end of one year or at the end of three years.

Principal Conant—That particular feature applies to the time when it goes into effect. Suppose we succeed in getting it passed during the coming Legislature, say in February. In March the present teaching force will come up before the board of education for reappointment. If at that time a teacher who has held a position in that school system for three years or more is reappointed, then her position is permanent. It simply gives the board of education the right to pass on the tenure of office of its teachers once more. After that, that particular clause will not be operative. The design of those who framed this is in the first clause, which says that any teacher after service in the same school (that means of course the same school system; a teacher might teach in the seventh grade one year, in the eighth grade the next and in the high school the next) shall be eligible for this permanent appointment. The idea is that, if a teacher has been able to keep her position by the same appointing power three times, her position is permanent, and she can not be removed except for cause which will stand in any court of justice.

Prin. Arthur Detmers—I hesitate to speak on this matter because I am a novice here, and also because I firmly believe that this would be a good law for the State in general. I shall vote no on this occasion because I do not believe it is a good thing for us in Buffalo. If you will make an exception in the case of the city of Buffalo, I shall be very happy to vote yes. I simply make this statement to explain my negative vote.

Prin. J. E. Banta—Have we a legislative committee?

President Armstrong—We have a legislative committee that has held over from year to year.

Principal Banta—Then I assume that this resolution would go into the hands of that committee.

President Armstrong—It might, or it might be referred to a special committee, as this body decides.

The question is on the resolution without amendment.

It was voted that the resolution be referred to the committee on legislation.

Tuesday evening, December 29

SOME OF THE UNSEEN FORCES THAT ARE SHAPING OUR NATIONAL EDUCATION

BY PRES. HENRY HOPKINS, WILLIAMS COLLEGE

A wise man, Goethe, I think it was, has said, "While the doctrinaires are exploiting their theories, hunger and love go on governing the world." May it not be true that, while educators are discussing principles and methods, certain irresistible, impersonal forces go on determining the education that is to be? Is there underneath all our careful thinking and expert trying a power of tendency, a hidden dynamic that is deciding that comprehensive and unified system of education for all the people which, in this great American republic, is at last to emerge? Are there any vital principles which have been essential factors in our past history, which are inherent in and necessary to the democratic form of our government, which are still determining the evolution of our national education? Is there that in the present trend of our unfolding civilization which must, perhaps in spite of us, shape our educational future? That we may realize the fact that there are these unseen forces, that we may call afresh to our minds what some of them are, and what obligations of citizenship are involved in them, confesses the object of my discourse.

A smart writer in a recent magazine has characterized the latest annual report of our national commissioner of education as the dullest book in the world. Notwithstanding—let us say rather because of—its interminable statistics and its endless tabulation of apparent trivialities, of which he complains, it is a book of marvels, an absorbing record of grand and multiform achievements more interesting and more important than the volumes which tell of our crops, or our manufactures, our mines, or our transportation. These indeed are magnificent in their facts and in their implications. They appeal to the imagination, even to the spiritual imagination, in glorious fashion, but this record of educational facts and affairs lies nearer to the heart of things, it concerns far more closely the questions of happiness and the questions of destiny. Its appeal to the imagination is more majestic and more thrilling. It tells what eighty-eight millions of free people are doing to enlighten, train, and develop themselves, and so to realize the highest possible human products; and also what they are doing to preserve and carry forward the great free republic of which they are the citizens.

It is very much to the credit of the Czar of Russia that, when William J. Bryan called on him the other day, that ruler gave him a minute account of the systems of education in his vast dominion, showing, it is reported, exact knowledge of methods and statistics. It is a fact also full of promise for Russia.

There is a common saying that there are three kinds of lies: lies, white lies and statistics. This may be wit, but it is not wisdom. Facts are God's arguments and statistics are the records of the facts. The tabulated statements annually formulated by our government are entirely worth while; it is the false inductions made from them that are alone misleading. In passing permit me to say that the comments and observations furnished by our national commissioner each year have already become a monumental contribution to the science of education. Dr Harris's practised eye sweeps the whole horizon. He has the breadth and the insight of the true philosopher that he is. He has high moral adventure and the power of initiative of a great navigator. His catholic mind is always hospitable to new truth.

May I ask you now to take a very rapid survey of the *extent*, *variety* and *complexity* of our educational enterprise? The most cursory view of the present situation must produce on us an exceedingly strong impression of the extent of the work, of the vastness of the undertaking. Geographically considered, it is more than continental. It takes in not only the 45 states, but all the outlying territories. It sweeps from Alaska, with its more than 2000 pupils, to Porto Rico, with its thirty-four or thirty-five thousand. All the new dependencies are within its range. You know that in the Philippines there are more than 200,000 children learning English, with thirty-five hundred Filipino teachers. They have their normal, industrial and trade schools. It is not an insignificant portion of the surface of the round globe that is covered by the network of American school agencies. It comprises all the different classes of mankind, and almost all the races on the face of the earth. Our Uncle Samuel seems to know that, if he is not going to be submerged by an overwhelming mass of ignorance and incompetence coming in on him as by a mighty invasion, he must bestir himself to send out his army of teachers to meet and vanquish them. It is either the army of teachers in the schoolhouse and the shop, with books and tools, or the army of soldiers in ships and forts with shot and shell and bayonet. He must either educate or subjugate, and in either case he has a very big job on his hands. We certainly do not want, and must not have, any help from the Philippines or Porto Rico, from the Moros or the Kanakas, in our task of governing the United States. We have enough barbarians and half civilized in our own slums, backwoods and plantations.

The extent of our educational operations is illustrated also in the legislation and organization behind them all. It reaches up from township through county boards and state boards to the United States Commission. Think of the number of boards of education and superintendents of education in all the length and breadth of the land. In every village and in every ward there is a nucleus of life, a person or persons whose official business it is to study and provide for the educational wants of the rising generation, and who through the various educational journals are in touch with the latest thought and methods. There are also the boards of trust of the endowed schools, colleges and universities, hundreds on hundreds of them, of great dignity and power, caring for the vast interests committed to them as great business corporations look after their immense concerns. So also the regents of state institutions. All these together form a host in every state and territory, who are more or less diligent students and active workers along educational lines. These governing bodies demand and employ the men and women of high intelligence and effectiveness in the several communities where they exist. Certainly we should not forget those greatly needed agencies, the Southern Education Board, and the General Education Board lately set on foot, endowed with abundant brains and money to help our southern fellow citizens in their brave efforts to meet their overwhelming school problems. Mention should be made also of the National Educational Association, the strongest organization of its kind in the world. At its last meeting in Boston over 35,000 were present. It is said that it is owing largely to the influence of this association, to the interchange of thought, and the mutual acquaintances formed, that it has come to pass that the educational systems of 45 states are so closely parallel. Nor can we omit such imposing conferences as this, instinct with moral earnestness and guided by wisdom. The projectors of the approaching world's fair in St Louis, believing education to be the source of all progress, are preparing there a separate building, a palace of education, where the extent and variety of the achievement may be spread before the eye. The number of people employed in this business of teaching is a magnificent showing. There are a round half million of them in our country today—these in the institutions supported by taxation—besides private teachers and tutors. This army is receiving 15,000 recruits a year from the normal schools. It is certainly an imposing and moving spectacle, this half million teachers tramping to schoolhouse and lecture room every morning and waiting to receive the eighteen millions of pupils flocking to place themselves under their care.

The cost of all this is no less suggestive, about two hundred and forty-nine millions of dollars annually; the increase the past year was nearly $15,000,000. This is a small item compared to our drink bill, or even our tobacco bill, but it is magnificent, nevertheless. The value of all school property is over $600,000,000, $25,000,000 more than last year. To this must be added the more than princely private benefactions which are being poured year by year into the various educational institutions, last year more than $17,000,000. It is not strange that this form of benevolence should attract thoughtful men and women. There is less "out" to this form of giving, than to any other, because this, more than any other, is helping men to help themselves. Our public school system today is the vastest educational enterprise the world has ever seen. It is, in the words of Horace Mann, " the universal education of the people in common schools free to all."

The academy is worthy of a volume in itself, while, in bewildering multitude crowding on our visions, are all the affiliated cooperative private schools, the old colleges and the great universities outside of state control, the professional schools, rank on rank, the technical schools, practical, industrial universities of the common people, the normal and training schools, the agricultural and mechanical colleges, the institutions for education in the industrial and fine arts, supported by private benefactions, of which the Cooper Union, the Pratt Institute, the Drexel and Armour Institutes are splendid illustrations, the business schools, the city evening schools, schools for defectives, reform schools, schools and orphan asylums, the hosts of private kindergartens, schools of oratory, music and elocution, of the various trades and vocations, the latest, the School of Journalism, starting at Columbia with an endowment of $2,000,000, painting, sculpture and the drama, the numberless musical conservatories, the Y. M. C. A. educational work assuming large proportions, great industrial training schools for the negro, like Hampton, Tuskegee and Tougaloo, schools for the Indians, magnificent institutions for the higher education of women, thronged with students; besides all the coeducational colleges and universities; and, in addition to the coordinate colleges like the Western Reserve and Brown and the annexes like Radcliffe and Barnard, the wonderful Chautauqua centers, correspondence schools of every grade and form, like that at Scranton, which is turning out by the hundred and thousand licensed engineers from the ranks of common mechanics, and summer schools magnificent in variety and extent. In addition to all this is the growing system of Roman catholic education, the unification and coordination of which are being rapidly effected. It is indeed inspired and governed from Rome by a foreign ruler and is under ecclesiastical management, but it is evidently quickened and modified by American ideals and, despite significant signs to the contrary, increasingly sympathetic with the purposes of the state and national systems of public education. We should not forget the steadily increasing numbers of free public libraries that from week to week shine out like new stars among all these other constellations in our national sky—nor in this presence should I fail to mention the libraries and picture collections which are the basis of the effective extension work done here in the State of New York. There really seems no end to the possible enumeration.

The variety of form involved has been already suggested. It is a variety like that of Nature in the flora and the fauna; like Nature because it is the product of vital forces each freely embodying itself after its kind and according to its environment. The journey from the kindergarten to the university supplies a surprising diversity of view. The little red schoolhouse and the modern high school are separated by a wide difference. A wonderful variety, and yet not unrelated, all are more or less interdependent. At a recent meeting of the New England College Association, one of the questions proposed was, How shall we take advantage of the reaction from the kindergarten? From the kindergarten, with its perpetual simulation and make-believe, its unreality, its lack of strict requirement, its want of preparatory discipline, there is healthful reaction; but the kindergarten has brought in a leaven that is working through and modifying all grades up to the highest. In its underlying principles and in its philosophy it is sound and beneficent.

Our state universities are a new product in history. They were declared by President Eliot some years ago to be a form of socialism. Certainly they are superb illustrations of what can be done by common effort for the common good. They seem to have passed the day of poverty and parsimony and to be escaping from the politicians. We may anticipate for them the time when, under the stimulus of rivalry between great and rich commonwealths, they will rise into unexampled magnificence. In the days of the medieval Italian cities, the cathedral was the highest expression of the corporate life, and then the question was not one of cost, but of the possibility of finding the man who could produce a cathedral more grand and splendid than that of the neighboring city. So these imperial commonwealths, now entering on a magnificent rivalry, are already striving in their university development, almost regardless of expense, each to surpass the other.

This variety in the total product is well illustrated in the American college, an educational organization conformable to no other type. These colleges are today adorning and blessing the vast commonwealths that make up the glory and strength of our republic. Their history is a large and noble part of the history of the letters, the science, the patriotism and the religion of our country. They stand distinctively for the liberal education. They are not merely schools of preparation for the professional schools, as the majority of their graduates do not go into the professions. Their distinctive product is the symmetrically developed man, the intelligent, responsible citizen. At the same time, it is claimed that the broad training for this is the very best basis for professional or technical courses. With this variety there are bewildering *complexity,* an apparently hopeless want of agreement, uneconomical overlapping, and extravagant waste. If there be any system, it is as yet invisible, or discernible only in prophetic outline. We see only confusion, *disjecta membra.* All is apparently chaos. No authority for founding or coordinating; everything seems haphazard and go as you please. Any benevolent old gentleman with a couple of millions to spare, might plump down a new university into Syracuse without asking your leave, or a college into a neighborhood already over-supplied. Think of the harm such a man can do. Or a religious denomination may push its own institution into a region which has no lack of educational privileges. Can any unity come out of all this?

Observe just here that it is equally evident that everything on this vast field is in *process;* everything everywhere is in transition. Nowhere is this better illustrated than in the secondary education in which so many of you are engaged, with its tendency to enlargement of its field downward, to include the last few years of the elementary courses in the interests of saving time; outward, adding new subjects; upward, to include at least a part of the present college work. The three year college course is gained largely by adding to the work of the secondary schools. There is even a demand for more extended work in these schools that will provide adequate preparation for professional schools without the intervention of the college. And so discussion and change go on. It is well that it is so. It is our greatest blessing that there has been possible no shaping hand from the place of power.

I have been at pains to call attention to these general, familiar aspects of the educational situation because these very conditions are the proof of the existence and free working of an organific principle, for what is all of this but the free, spontaneous, unconstrained outworking and embodiment of a principle of life? It is one of the proofs of the fact that "the outward feature of the evolutionary process in the modern world is emancipation."

Beginnings in our country were simple but very noble. There was the combination in organic unity, but with ever increasing liberty of action, of three institutions, the church, the state and free education, culminating in the college. This it was that made the little settlements on the shores of Massachusetts in the beginnings of New England, a unique and altogether original commonwealth. A church without a bishop, a state without a king, and an educational system separate from both church and state, open on equal terms to all men, English and Indian, with a compulsory training in the common schools for all the children of the people; such was their bold beginning. It was however rudimental and imperfect, the magnificent inauguration on the new continent of the new democratic, Christian age! These three institutions were all in germ purely democratic, and were all profoundly religious.

This fluidity is illustrated also in the changing curriculum in the college, brought about by the attempt under the new demands of the times to balance the disciplinary with the culture studies, the humanities with the sciences. It is illustrated in all our higher institutions by the introduction of the elective system and now again by the reaction which has set in against the elective system in its extreme application. Fortunately there is organic capacity for change in all of our institutions. This tendency is shown perhaps most of all in the university. The academic department is that about which loyalty, the enthusiasm and the historic interest gather. If you will permit the comparison, the college is the historic old cathedral, sacred to culture, to learning, to literature, to manhood, to citizenship. The professional and technical schools have been looked on as only the shrines to local saints, the lady chapels and chapter houses, the various subordinate annexes to the main structure. The college department is still the heart and the commanding factor in nearly all of the older universities today. The graduate departments are comparatively unimportant; but the professional schools are coming more and more to dominate the life and fix the tone of these institutions; while the academic department, though so large as to be bulky and unwieldy, seems likely to be subordinated. The magnificent personnel, the superb equipment in every department, are adding to the glory and the attractiveness of the graduate school. The academic department is being overshadowed and must, it would seem, at last be remanded to a place among the many other schools, and the institution be evolved, almost in spite of itself, into a real university. The attempt to be a university and a college at one and the same time, with the college the big end, bids fair to prove a failure as the years pass. At all events, there is rapid transition. It is another illustration of the fact that everything is in flux.

The early settlers gradually provided for free public education as a civil institution. The Massachusetts code of 1647 is probably the first in history to make such provision. It was mandatory; it was watchful of the neglect of parents; it looked after the ignorant and the indigent. It was not at first free, but it provided employment for the idle. Education in New England in the colonial period was accepted as a public responsibility. It was also a religious duty and, next to the pulpit, commanded the best talent of every settlement. Of 22 masters of Plymouth from 1671 to the Revolution, 20 were graduates of Harvard. The same was true of Roxbury. In the churches they had special pews provided for them beside those of the magistrate.

"Forasmuch as good education of children is of singular behoof and benefit to any commonwealth, and whereas many parents and masters are too indulgent" is the preamble to the Connecticut code of 1650. There is a look here not only to the child, but to the commonwealth, expressed afterwards in the Massachusetts Constitution, which declares that education must be forever cherished, that wisdom and knowledge as well as virtue may be diffused among the body of the people. Though there was no school system south of Connecticut till after the Revolution, and none really worthy till the last century, nevertheless the interests of education were carefully looked after, specially in the higher institutions. The history of all the early colonists who settled along the eastern coast is in this regard highly honorable.

Now all of these had one vital thought, one dynamic idea, viz, the exceeding preciousness of the individual man. This thought of the value of man as man has lived among all peoples. It is testified to by the world-wide love of liberty. It has had its fruitage in the passion for freedom; it was a part of the very substance of the Israelitish faith; but it was never embodied in the very heart of a great world movement till Jesus, by his words and life, taught the dignity and the infinite value of the individual man. When he cared for the weakest and the worst; when he declared that it were better for a man that a millstone be hanged about his neck and that he be drowned in the depth of the sea, than that he should cause one of the little ones to stumble, he put the mark of an infinite value on the weakest and the least human being. This, more than all oratory and all legislation, has been the spring not only of charity, but of free government under the sun. This was the hiding of the power of a pure Christianity, divorced from arbitrary government. This supreme regard for the worth of the individual man is the root idea of all religious and civil liberty. It has been most fruitful when intensified by religious conviction that every man is made in the image of God and has been redeemed by the Son of God. The humblest may not, therefore, be despised or neglected or harmed. Each has the right of the opportunity to be all that it is in him to be. This logic carries with it the right of free education and of free thought. This carries with it the democratic program. That Rousseau came out from Calvinistic Geneva was not an accident of history. This is the mighty force that has wrought constantly for human liberty, enlightenment and help in the past. This was the settled faith of those first settlers—not the Pilgrims and the Puritans and the quakers and the Huguenots and the baptists alone, but the settlers of Maryland and Virginia and the Carolinas as well.

We claim that this principle of full and free opportunity for the individual man finds its logical outcome in this variety and complexity which we have passed in review. The period through which we have been passing has been one of general enfranchisement in all the conditions of life and in all the forms of human action. It has been the era of emancipation, not only of thought and creed, but of commerce and industry—the setting free of individuals and of classes of men. It has flowered and borne fruit with prodigal profusion in the virgin soil of a new world.

The ideal toward which the world is moving, to quote Benjamin Kidd, is that of the "fair, open and free rivalry of all the forces within the social consciousness—a rivalry in which the best organizations, the best methods, the best skill, the best ability, the best government, the best standards of action and belief shall have the right of universal opportunity." This of necessity produces a free conflict of forces such as has never been possible before. "There are conditions," to quote Kidd again, "of rivalry and strenuousness of conflict and stress such as never prevailed in the world up to this time." These phenomena are only a natural resultant. Notice now how, along with this and supplementing it, other principles are also at work, just as mighty and just as compelling, and these also were inherent in the origins. There was the ideal of the state, of mutual obligation. It was found shaping itself in the compact in the cabin of the Mayflower; taking form in the town meeting; developing in the Constitution of the Connecticut colony, formally expressed in the Declaration of Independence. It was impressively revealed in the Constitutional Convention, and all along afterward in the evolution of the life and legislation of municipality and state. This sacred obligation of common action for the good of the individual and for the common good, has been also a working principle. Sacrifice for the common weal was a root principle at the beginning; education for the sake of the individual, education also for the sake of the state, the ultimate good of the individual possible only through a mutual service, the preservation and perfection of the state possible only through individual intelligence and virtue, these are the coordinated principles of all stable society. This tendency to combination, running perhaps beyond the limit of common action for the common good and grown into mighty and multiform shapes, is the marked characteristic of our time; seen in industry, in commerce, in transportation, in church and state; illustrated here tonight in the united effort of those having common purpose and common aims. This has produced our state boards. This it is which is bringing about increasing unity. This principle is not any more than the other claimed as an American invention. Nor is it claimed that the fact that intelligence is essential to sovereignty, is an original American idea. This has been universally believed, and hence restricted and aristocratic sovereignty in church and state has always been opposed to universal education. That control should be intelligent is older than Plato, and has been denied nowhere. It was not original in Washington's address. Charlemagne required that the children of all persons participating in the government should be educated, in order that intelligence might rule the state. As a part of the philosophy of life, and as a theory of the state, as an ideal, it has floated in the minds of men almost from the beginning. Every thoughtful person up to today in a position of responsibility gives utterance to this truth.

Ex-Governor Taft, on the 24th of this month at a banquet of 400 Filipinos, warned the heads of the political parties and the office-holders to desist from speculating on independent self-government till the schools were filled with children in every village and the masses were better educated. It was no new truth in the thought of the world; but here was the development on this fresh continent, free from established precedents and customs, of the force of the personal life in education and industry, and of the ideal of the free state. Here was an opportunity in the absence of governmental interference or ecclesiastical regulation, for invention, for initiative, for moral adventure along all social lines. Here was an open field, a new world. Horace Mann insisted that the transference of the fortunes of our race from the old to the new world was a gain to humanity of a thousand years. If so, it was because

> Laws, freedom, truth and faith in God,
> Came with those exiles o'er the waves.

It was so because the fathers had with them, and left as their priceless inheritance, inwrought in the very fiber of our life, these vital principles, the value of the individual human being and the necessity of virtue and intelligence for the preservation of the state, and then because here, as never in the world before, and perhaps as never will be again, there is free and open opportunity.

But you are ready to say that we are forgetting that the economic factor is the ruling factor in the life of the present. No one can look out on the enormous industrial expansion of the United States, or consider the intensity of the economic and industrial conflict that is being waged between the nations of the world, without understanding something of the influence of this factor in our educational development. It is transforming the education of Germany. England is waking up to its significance. It has profoundly modified our own system throughout, and the end is not yet. The stupendous changes in the 19th century were owing in very large measure to the increase of scientific knowledge and the practical application of scientific methods to the industries of life. As I was coming here, I met on the train a professor in the Wisconsin State University. He told me that 25 years ago their engineering school graduated from three to six men, who found difficulty in obtaining employment; while now, with 60 or more going out each year, there is a demand for twice as many. This has been the experience of many other schools. The fact is that our whole urban life as now constituted depends on the engineer, the multiplying car lines in towns and between towns. The sewer system which every village must now have, demands his services. The whole business of the country is being transferred to men of scientific training. The boy brought up in the shop is no longer preferred. The rule of thumb does not work in modern life. Even on the farm there is a call for a new kind of man. And these changes grow more startling, and the rivalries which they bring increase in intensity as the years pass. The late century witnessed greater outward changes and more advancement in this regard than the 18 that had gone before; the last half of the 19th was immeasurably more productive than the first half, and today we seem to be standing only on the borderland of that which is yet to be. As in the days of Lord Bacon, there is the sensation of the dawning of great events, of living in the hours of the morning and of the sunrise of the beginning of the fulfilment of the hopes of humanity.

We are, therefore, quite ready to recognize the influence of the economic factor in the development of education. Individually it is the desire to get on that is often, and rightly, the prompting motive in the boy and in his father. This is the stimulus which moves our municipalities in the support of education. From any point of view it is more than justifiable, for a free man must be an industrious man, a self-supporting citizen getting an honest livelihood, and, if possible, getting on in the world. Moreover, we can not have a nation of free men who are not self-supporting. The power to stand up and to compete in the world's market is a necessity not only of our commercial, but of our moral, and I might say, our very spiritual life. It is perfectly true that overmastering materialism threatens all that is best in our life as a people, but this can not be escaped by foregoing the gifts of civilization. We shall find, when it arrives, that the streets of the New Jerusalem are paved with pure gold. The only way of victory for the ideal and the spiritual is to accept the fruits of scientific invention and industrial enterprise and subordinate them. They are very good as means to an end; as an end in themselves they are very evil. To stand aloof from and despise these outward gifts is folly. To try to educate the young to do so is worse than a blunder. To know, to seize, and to use the best of them for the highest things in life is the real wisdom.

There is nothing more salutary than to be able to do things and to do things well. This stimulus is needed in education, as elsewhere. Our government has developed into the greatest and most powerful force in modern civilization largely through this influence. The 20th century will be noted for the struggle between nations for commercial and industrial supremacy. It is already on us in very sharp form. The nations that will win and will control the trade of the world will be those that train their future citizens from the standpoint of efficiency, and the test which will establish the higher efficiency will be that of success. The nation whose system of education best gives to its citizens the power of accurate observation, quick adaptation to changed conditions and new inventions, and the ability to do things, will take the lead in the industrial and the commercial world. Our whole population throbs with the impulse of this mighty movement in the nation's life.

We have spoken of these three forces as prompting and shaping our vast and complex educational enterprise. Let that stand. It needs, however, to be said further that it is after all the resultant of all these that is the great, invisible organific force in and behind it all: that is to say, it is the struggle for the survival of a free, ideal system of government against all the forces that threaten its life. This is the fact that accounts more than any other for our thinking, our planning, our taxpaying, our patient toil, our tireless devotion. It is this that brings you here, that compels your presence, that inspires your counsel. The motive of the teachers and of the taxpaying citizen is the same as that which prompted the citizen soldier in the war for the Union; it is to save the life of the government; it is the impulse of self-preservation; it is a determination that free government shall live and not die. You teachers are soldiers out on the firing line, and a patriotic citizenship stands behind you with encouragement and supplies. We may dimly apprehend this, but it is, conscious or subconscious, the power that moves the mighty machine. We are all more or less acutely aware of what these forces are that make this struggle for survival needful: (1) the ignorance of the well-meaning of the duties of citizenship, of the means of gaining an independent livelihood, and of the facts on which an intelligent exercise of the suffrage depends; (2) the tendency, perpetual and everywhere present, to degeneracy in the selfishness of man; and (3) the constant coming in on us from all lands of the hordes and floods of the unfit.

Can moral ideas be kept in the ascendant? Can the ideals of the fathers survive? The two first spoken of are the two foci of the ellipse in which move all of our public life and our private interests, or, to change the figure, these are the two balanced forces, the centrifugal and centripetal, that hold us level and impel us in safety on our untried way. Any violation or refusal of the right of the humblest to full opportunity, jars and imperils the whole fabric, while indifference to or neglect of the common duties of citizenship must be fatal to a free, self-governing commonwealth. If the organization of labor is to be so administered that the poor and the good workman are to be equally rewarded, the slovenly and the industrious, the skilled and the unskilled, equally encouraged, put on the same level of opportunity and pay, then the individual is sacrificed, the many are not in the end benefited, and the principles of free government are undermined. If in any wise we refuse to protect individual initiative, whether prevented by tyrannous, undemocratic and un-American rules of labor unions, or cut off by the ponderous iron doors of enormous corporations, outside of which are left ambitious and competent young men, cut off from opportunity and embittered against society, we are false to the logic of our history and to the vital principle of the life of the republic. It was Otis who declared in the early days, " The colonists are men; the colonists are, therefore, freeborn, for by the law of nature, all men are freeborn, black or white." The portentous negro question is at the bottom, simply this: Is the negro a man? If so, he must have opportunity. This may not mean the suffrage. The right of suffrage is not a natural right. In millions of cases it ought not to mean suffrage; but he must have opportunity to become all that it is in him to be. He must have education, in the rudiments and the fundamentals, industrial education, technical education, the higher education too, if he is fitted for it and can get it, for the race needs leaders, and if fitted to exercise the suffrage, he must, like any other citizen, be intrusted with it. This portentous and tremendous problem is on us, the negro is here, we brought him here; he has served us well. We can not forsake him, nor turn our backs on him, nor dishonor him. The general government may yet have to help even in the states the educational work for this race; but we have a right to demand, in the name of all that is sacred and ennobling in our past history, and by all that is precious in this experiment of free government that is now being wrought out, that, through immigration and naturalization, conditions be not imposed on us which make our success impossible. It would seem to be a matter almost of life or death that we decisively and absolutely stop the coming here of the criminals, the paupers and the decadent populations from beyond the sea; that we revise in every state our naturalization laws so that no man who does not read and write and speak the English language, and who has not been a full resident of this country for a term of years, shall have the right to vote.

But let us not doubt that this subconscious impulse of struggle in our total American population for the survival of the ideal, free government which has moved us, molded us and saved us thus far, will still avail.

The ideals of the fathers live in the hearts and in the lives of the masses of the American people—the love of freedom, the love of equality, the love of country and the flag of the country. As long as we cherish these ideals, so long will the struggle for the survival of free government go on. The average American citizen knows that we positively have got to have every man educated so as to be a servant of the state—educated so as to act intelligently on the constantly changing and advancing questions of public welfare; so as to be self-supporting, with the knowledge and the opportunity to compete for an honest livelihood; so as to know the ideals and history of his country, that he may be identified with it in sacrifice and service. No free government can survive without this education of its citizens. The people know this, and hence the struggle for survival that finds its magnificent, let us say, triumphant, expression in our expanding and improving American education.

It is too soon to predict what the final, unified, and coordinated system of national education will be. That it is being evolved thus far through the mighty, fast moving processes of our national life in harmony with the genius of our free democratic institutions, may, I believe, be confidently asserted. If we can only, by all means, hold fast to the principles under whose sacred influence these institutions had their birth, and in the light, warmth and power of which they have developed their mighty youth, we may rest assured that the invisible dynamic, which is as the very life of God, will work on unimpeded and mold the manhood of a state more lovely and more majestic than was ever dreamed of by Milton or Lowell or the loftiest poet of them all.

This educational movement in its whole scope and outline is, if there be any kingdom of God in this world, the coming of that kingdom. We are reminded of the parable of the seed growing secretly. "So is the kingdom of God, as if a man should cast seed into the ground; and should sleep, and rise night and day, and the seed should spring and grow up, he knoweth not how." Along with all our far-reaching plans and strenuous endeavors it is reassuring to remember this side of the history of events; while we watch the machinery, ponderous and intricate, to remind ourselves that there is a secret invisible energy in and behind the moral as well as the physical order of the world, a "power not ourselves, which makes for righteousness," as Matthew Arnold has it. The great Herbert Spencer, who, more nearly than any other man of all the ages, triangulated the universe, reverently acknowledged himself, after reaching the extreme limit, in the presence of the Eternal. Sir Michael Faraday, not knowing himself observed, used to be often seen dropping iron filings on a sheet of white paper that overlay a large magnet, watching wistfully the signs of the power of the magnet in those mysterious curves that formed themselves before his eyes on the paper. It is not unlikely that he discovered there the identical patterns that are revealed in the whorls of the nebulae, in the swirls of star mist in the Milky Way.

It may be that some of us, watching in quiet hours with reverent eye the mysterious movements of events in the little round of the school life where our work is done, may dimly discern the miniature outlines of the great republic that is to be; of the very city of God which at last, after all the mad, sad history of selfishness is ended, is to come down out of heaven from God.

Wednesday morning, December 30

THE EFFECT OF PRESENT METHODS OF TEACHING ENGLISH ON THE STUDENT'S APPRECIATION OF GOOD LITERATURE

Sup't Gurdon R. Miller—The work in English in the State of New York is carried on in accordance with the scheme laid down in the *Academic Syllabus,* and, in face of the remarkable improvement that has taken place in this work within the past five years, it ought to be said that the syllabus is deserving of very high commendation. I have faith in it; I believe in the ideals that are therein inculcated. And, if you turn over the pages of the Regents syllabus and read carefully, I believe you will find no section of it that is any better written or any better planned, if as well planned, as the work in English. The time is coming, however, when that syllabus must be revised and rewritten; and it is right and proper that we should discuss the subject of English at this time, as a sort of preface to the revision that must be made during the coming year. Personally I do not believe that very many changes will be made in that syllabus; and I desire to say further regarding it, that I know of no syllabus which, in the value of the ideals that are offered and in merit of form, in the expression and the arrangement of the work, is comparable with it today, unless it be the new syllabus of the city of New York. I heard no reference yesterday to the new syllabus of the city of New York, but I believe that it is destined to modify to a greater or less extent the Regents' work in this State.

After having made this preface you will understand readily that I have only minor suggestions to bring before you. And, if I emphasize but one phase of the English problem, it will be all that one ought to attempt in the time allotted to me this morning. I had thought not to reduce my remarks to paper; I have decided however to present them in this form, and, if any time is left me, I will ask the president to give me the privilege of oral discussion.

The great fundamental subject of the high school curriculum is or ought to be its English. In its comprehensiveness, it includes more departments of knowledge, a greater opportunity for expression and general culture than does any other subject in the curriculum. The great educational quadrilateral has for years been the mathematics, the sciences, the languages, and English. In the sense that English includes a study of the structure of the language, its literature and history, the great subject becomes primary in its importance in all school work. I can conceive no line of argument, or no basis for a valid claim, other than that the general study of English must be fundamentally first in the elementary and high school curriculums. To treat it carelessly or with indifference in either the elementary or the high school is to a great degree to nullify all other educational efforts, to arrest the proper mental development of students and to invite a prostitution of the school system to less legitimate means of education. The greatest curtailment of possibilities in the school curriculum, I conceive, would be through neglect or lack of appreciation of the power of English work.

The great English tongue, that symbolizes in its forms the life, the beauty and the power of modern civilization, is the greatest implement of education which you and I will ever wield. It is the chief instrument on which we depend and always shall depend for the education of our students. Its great power is ever present and grows more potent to the student each day. On his comprehension of its power will depend much of the potency of his own life. On his conception of its accuracy will be based to a large degree his business successes. According to his appreciation of its surpassing beauty of form, his esthetic life may be born and nurtured in all its beautiful and far-reaching possibilities. To the American student, English is his great academic life study. As he conceives it, as he knows it, as he believes in it, it will come to typify his inmost life. Language symbolizes life, it typifies the thought and the morals of the man. In its comprehensiveness and its possibilities as a department of school study, no other subject is comparable with it.

In the subject for today's discussion, the meaning of the term, English, is not defined. It may mean English in its more comprehensive sense, including literature, or it may mean the study of technical English grammar and its accompaniments. If it mean the first, then I believe that the present methods are vastly superior to those practised 10 years ago. But I also believe that the present methods will accomplish little unless the work of the English department is in close touch with the school library and keeps ever in mind the general reading of its students.

It is quite possible that better selections for literature might have been made than those we are now using. It is also possible that all books now outlined in the Regents syllabus are not suited to high school students; but the general method of work as outlined is worthy of commendation. I am speaking now from the standpoint of literature and refer more specially to the English reading and literature courses.

But, if English in today's discussion be interpreted to mean the study of technical grammar, then I assert that the tendency of the present method is not well calculated to arouse the student's appreciation of good literature. The use of literary masterpieces may be an aid to the study of English grammar; but the study of grammar itself is not stimulative to the study of literature. The study of a sentence in its structure and the relationship of its parts is not a thing of literary interest, nor can it be. The literary masterpiece placed on the dissecting table is not a thing of beauty, neither indeed can be. The application of the knife robs it of life, and the continued operation takes from it all semblance of beauty and makes impotent any attempt at literary inspiration. The portion of a masterpiece which is separated from its context for purposes of grammatical analysis is no longer a part of the masterpiece. It is a lifeless limb cut from the trunk. It may serve well the class purpose of analysis; but it would serve that purpose equally well had it long before been severed from the context. Such a passage is not literature, and any attempt to make it such in the eyes of the student is inimical to the genius of either grammar or literature. In my opinion, the literary classic in daily use for class purposes in grammatical analysis never becomes to the student a thing of delight as literature. If perchance, the student has previously read the book, it may have accomplished in him somewhat of literary inspiration and culture; but from the time it becomes simply a means of grammatical analysis, the tracing of word relations, etymology and syntax, it ceases to be a thing of beauty. For the purpose of analysis, a series or compilation of sentences and selections, drawn from other sources, will furnish better material, and certainly greater breadth of material, than will any single classic, no matter what its beauty, no matter what the reputation of its author, no matter what imagined value it may have for the teacher, or the maker of the curriculum.

Literature is a spiritual force, and the study of literature is a study of emotion. It is a study of things intangible; but the study of English grammar is immersed in that which is material and tangible. I believe that the study of English grammar ought not to be joined inseparably to the study of literature. I believe emphatically and always in the possible value of English grammar as a subject of study, but I also believe with equal earnestness that it ought not be to bound with its dead body of materialism to the living, vital beauty of a literary masterpiece; and more specially if by this union, it is somehow conceived that this study of technical grammar is to become an aid to the appreciation of literature. The idea is wrong and can never be right. I have no objection to the use of an English classic for grammatical purposes, but I do object to the falsity of the idea that this kind of study is stimulative to a taste for good literature. The union savors too much of force and the exaggeration of the possibilities of good.

English grammar is a technical subject of study. It has been valuable in the older curriculums; but I believe that its relative importance today as a school subject is by no means what it was 25 years ago. In the days when science, history, or literature, was not a part of the curriculum, then it was that the study of English grammar was pursued as a means of mental discipline, and as such it proved itself an extremely valuable member of the curriculum. Commissioner W. T. Harris asserts that it is the most valuable school subject for the purpose of introspection. This is unquestionably true. It is introspective; and, while it deals with the tangible materials of written language, yet it leads back to mental processes and becomes at times almost psychologic in its nature. It is a science and as a means of discipline may be unquestionably of great value. Today it is just as efficient in its power to develop mental strength as has been the case in the past; but merely as a means of mental discipline, we do not need it today as we did 25 years ago. As a disciplinary subject, we can supply its place, in large measure, from other fields of study. It ought not to be relegated, nor can it be, to a position of no importance. Neither, however, should it be permitted to retain a position of the same relative importance as heretofore.

It is unfortunate that at the beginning of high school work it has seemed necessary to continue the study of English grammar and at the same time in the same classes to begin systematic literature teaching. With the majority of students this is the first literature teaching. As such it is a broad field, fertile in possibilities; and I believe that eminently more satisfactory results would ensue if we could remove from these classes the systematic study of English grammar. With regard to the work of the preliminary grades, it seems practical that one year of close systematic study of this subject in the grammar school would give to any student a knowledge sufficient for his future use. Then let it be dropped, at least for a time, from the school course as a subject of study. This will leave the first year of the high school free for the study of literature and composition proper. This in my opinion should be the chief business of the 1st year English classes.

The study of literature can profitably be made, and without injury to itself, a stimulus to work in composition. While the work of composition based on literature does not tend to deaden interest in the literature to the same degree as does the study of English grammar, the burden now placed on the high school in the teaching of composition and literature is greater than it should be. Pupils who have spent eight years in the grammar schools should be familiar with many phases of good literature. Schools that are not inculcating in the lower grades a love for good literature and teaching the proper use of the library, are not doing their duty by the pupils under their charge; and, at the same time, schools that are not doing systematic oral and written composition work based on literature, throughout the same course, are neglecting an opportunity for mental culture, the neglect of which is inexcusable. Pupils who are systematically taught the use of books and receive systematic training in oral and written expression throughout the grades will come to the high school ready to take up 1st year English and do excellently in composition and literature at once. They are prepared for it and will continue the work eagerly and with profit.

And more, if the same pupils have been taught in the grades the simpler forms of grammatical constructions and word modifications and have given one year in the upper grades to close systematic study of grammar, their knowledge of the subject is sufficient for ordinary purposes, and it is not necessary that it be *continued as an* incubus on the high school course.

I am ready to concede that the chief cause of weakness in 1st year high school English is lack of proper preparation of students for the work: but I am not ready to concede that the present methods of English in the high school are necessarily the best that can be formulated. It is my firm belief that the curriculum of the grades should be remodeled to give greater opportunity for composition work, and that this work should be based on literature; and I also believe that it would be a valuable gain at the present time if the amount of English grammar in the high school were substantially reduced and eventually eliminated entirely as a systematic course in the first year.

The question, it seems to me, is a question of grammar almost entirely. I do not agree with the speaker of yesterday who said there are no English grammars on the market that we can depend on as texts for school use. I think there is an abundance of English grammars that are worthy of commendation, and I hope I have made myself sufficiently emphatic on this subject of English grammar. I believe in it as a subject of study, but I do not believe in beginning it in the fourth year of the grades, carrying it through the balance of the grammar course, taking it into the high school, continuing it for four years there and then taking it in the college. If a boy is able to finish reasonably well his arithmetic at the end of the eighth grade and can give satisfactory results, I believe he is also capable of good work in English grammar. If his ability in logical exercises is sufficient to enable him to finish the arithmetic work and be ready to drop it unless he sees fit to elect it in the high school, then I say the same power in the same boy is sufficient to enable him to finish his English grammar at that time; but, if you deem it necessary that he should take some of it in the high school, do not give it to him in the first year. I believe that at the present time it is a hindrance to progress in literature and in composition.

I believe we shall have to continue in the high schools the study of grammar by means of a textbook, and the same with the study of rhetoric. There must be a time and place for the definite study of these subjects. The question is where? I trust I have defined my position with sufficient clearness on that point. One more thought before I close.

Those of you who were present in Boston last October at the superintendents' meeting, heard J. Stanley Hall say this, perhaps, "It is idle for us to expect to get any better results in written English till we do more and better work in oral English"; and, as a closing remark, I want to say to you—and most of you are men who control your elementary curriculums—that you are not doing what you ought in the matter of oral composition in the grades. Every child who enters school should have systematic oral training from the time he enters the grammar school till he leaves it; and I believe it is our business in the high school to continue the same work. I would have the work based on literature, a combination of literature and composition, but do not let us lose sight of the oral work. If a child can express himself orally, he can express himself on paper, and he can not express himself on paper unless he is able to do the oral work. You may say the element of time enters. I concede that; nevertheless, the fact remains that you can not have facility in written work unless you have ability in oral composition.

Sup't C. S. Marsh—I wish that I might emphasize what Superintendent Miller has said about the study of grammar; not that I deem the study of grammar needless, but that the time devoted to it might so much better be devoted to some other subject. I believe myself that every pupil who has taken Caesar and Cicero can accomplish a sufficient amount of grammar in five weeks' review, and I wish we might have in our high schools for those pupils who have had three years of Latin merely a comparative study of English for five weeks in order to clarify their minds.

In the 10 minutes allowed me, I wish to show briefly the status of the study of English in this State 10 or 15 years ago, as compared with the study of the same subject today, hoping thereby to comment favorably on the tendency of teaching English at the present time. Twelve years ago the study of English in the grades was confined wholly to the study of technical grammar, and in the high schools to the study of formal rhetoric for 13 weeks, and the textbook on the history of English literature for the same length of time, giving the merest outline of authors' names, events in their lives and lists of books and dates. No attempt was made anywhere to bring the pupil into contact with literature itself, or to train him to a power of expression.

If the work of one normal school of the State may be taken as a type of the others, this was also the status of the work in the state normal schools less than 20 years ago. In one at least, in 1884 and 1885, not a poem or story, or other piece of literature, was studied in the classroom, or required to be read outside. The pupils studied and talked about authors, dates and writings, but merest curiosity caused me to read, one Sunday, Longfellow's *Hiawatha* to my fellow students at the boarding house. A keen relish of this, our first poetry, led me to read to them the same day. *Evangeline* and *Courtship of Miles Standish.*

The following is a list of subjects for compositions for the 20 weeks in connection with the study of rhetoric:

Paper; Fear; By a miss of 15; What becomes of rain?; Trifles; The good time coming; Mind your own business; Never borrow trouble; Tricks of trade; Death of Longfellow; School associations; Never give up; Criticism as a means of improvement; Earnest words; Giants; Pioneers; Figurative language; Pruning; Should the truth be always spoken?; Self-praise no condemnation; Maple sugar festivals; March weather; A letter from the country; Earnestness; Tomorrow; True Manhood; Young America.

There was little or no discussion of these subjects before or after writing. The best teachers of the village and city schools at that time were graduates from the normal schools, and English was taught on the same plan, except that less written expression was required of all pupils. Though the study of rhetoric and history of literature was encouraged in the high schools, little or no work was required of all pupils in either English grammar or Latin, or any other language that would give definite shape or form to the pupils' mode of thought. To modify and improve such conditions, only one thing could be done, and that was done in course of time as well as possible, by reorganizing by dividing the study of grammar into two parts, sub-academic and academic, with some reference to the physical and mental development of growing youth; defining the province of rhetoric, and the history of literature; requiring of all a definite amount of English or its equivalent; and gradually changing the point of emphasis from absolute drill on forms, science of language and immaterial dates to a proper recognition of the relations of forms, figures and history to the great masterpieces. The most potent and immediate way to reorganize a course of this kind was to get the teachers of the State talking about English in its relation to their own work through examinations, whose contents should divulge their underlying purpose. This was done in a very proper way, but a protest went up from Montauk to Niagara and from Plattsburg to Olean; but in course of time teachers ceased to scold and to protest and began to think, and study not only the old courses in English as reorganized, but the new parallel courses based on the masterpieces, which gave them (for the first time in a majority of cases) not only the inspiration to read and study the great literature of our language for themselves, but to teach as well as they could the masterpieces.

The great majority of teachers of English in the State were not, and are not today skilled English scholars, but a method for subdivision of the work was devised, and each teacher has been able to do something, for every masterpiece on which an examination must be taken must be read, and the first and great thing in the education of the child is to get him to read. Cursory reading can be done by all. Every one who must take an examination must understand the text, so this was the second attempt—and a great step it was from the study of dates and facts and lists of names to trying to find what the author has to say to the reader himself.

From this study there naturally came the study of plot and descriptions of customs and manners.

A Harvard professor about this time made a widespread impression on the teaching of the paragraph, and simultaneously publishers sent out multitudinous editions of English classics filled with footnotes. What teacher so dull that he could not do something with all these tools, rapid reading, understanding of text, plot study and descriptions, paragraphing, footnotes. Probably from *no literature* to *all literature* has been too much the tendency. Surely, great gain has come from the change of point of view alone; but today, if I know the character of most of the schools of the State, there is still a lack of appreciation of a few fundamental principles in teaching English. Instead of pointing out these defects, allow me to outline what I think must be done to bring about a better appreciation of literature on the part of the pupils.

First: there must come to every superintendent, principal and teacher the necessity of expression, oral and written, every day, from the first grade through the high school. Of the two, oral expression is the more important. Demand complete sentences in every recitation from every pupil, except in rapid drill work. Get every pupil to talk every day in good English, about anything that interests him, whether the circumstances of life, his amusements, his home work, his history, his geography, his nature study, or even his arithmetic. In every grade and classroom, set apart a portion of the day for the vocalization by the teacher of some literature, hoping by hearing a master's words every day, the pupil's perception of the true will be developed, till he shall know instinctively the good from the bad.

Require from every pupil the reading of at least five books a year, no one of which contains bad English or dialect, and every one of which contains some noble thought and beauty of expression. Give him full credit in his English work for everything well done (oral and written) in connection with his other school work, and so correlate English with other work that the pupil will feel that his English is a part of all his other work, and that his oral work is of as much importance as his written. Remember that he can not write, if he has nothing to say, and that his power to talk is a good index of his power to think.

The most important work of the first six years of school is to gain the power to read, and the next, to talk and to write. Be afraid to emphasize the science of teaching for pupils too young, but never be afraid to get them to read, talk and write.

The study of English with children, then, must be necessarily cursory reading, impulsive talking, developed writing and an attendant study of grammar, rhetoric and history at the proper maturity of the pupil, and the earliest of these should be history through biography. Biography even to very young children is necessary to give reality and life to literature, as well as events, and chronology is necessary for the clear understanding of it.

In literature are stored the most precious thoughts of our race, and the best fruits of our culture. A cursory reading gives to us the color, and the joy of that which lies nearest to the surface, but to read all literature without delving for the hidden meanings and artistic structure, is to miss that which transmutes the written statement into literature. Therefore, as soon as the age of a pupil permits, the method of cursory reading should be modified and become more and more intensive and consequently circumscribed for class purposes.

In my judgment, the lists for intensive reading are at present too extended. That the pupil shall read and talk and write is the first thing to be sought, that he shall delve and be instructed is important, and should be always the end toward which every teacher should aim. For, unless literature brings to the student thought above his present plane of life, reveals to him principles of art unknown to him before, and defines for him ethical ideals, new to his experience, its study has failed of its greatest purpose.

These require serious study and meditation and should be increasingly the points of emphasis of the last years of the high school, rather than of the first. The skilful teacher will proceed from the rapid to the slow movement in the study of literature and compel, as the pupil develops physically and mentally, the appreciation of the application of the principles of grammar and rhetoric, of color, of art, of ethics. The mind must have maturity and time to familiarize itself with examples in solving these things and readjusting itself to new ideals.

Therefore, some parts of a great piece of literature should be approached again and again and from many points of view. This, I believe to be the tendency of the teaching of English in contrast with the chaos and the approximate vacuity of 12 or 15 years ago. The prime factor in bringing about this condition in the high schools of the State has been the task of the English department of the Regents office, and its method of work. There are defects, and there always will be. If these defects are to be corrected, the corrections should be modifications only, and not revolutions, allowing freedom of method and individuality to the several schools, and above all should conform to the laws of growing youth, both physical and mental.

Prin. G. H. Baskerville—In considering the general statements and the excellent suggestions of the papers which have been presented, in regard to improving the student's appreciation of good literature, I would say that we may define this power of appreciation as the ability to acquire power of expression and usefulness. In order to do this, we must develop ability to appreciate the imaginative, to develop ideals—in a word, we must develop the esthetic sense of the student. We must develop the pupil's logical power. We must also develop the mastery of the machinery of expression, the use, meaning and employment of words. We must develop ability to read aloud, doing justice to the author's logical meaning and his mental suggestions. We must also develop the moral sense of the student. In order to do this, we should have literature studied in connection with formal grammar throughout the high school course.

I agree with the preceding speakers in saying that formal grammar, the analysis of detached bits of literature, has been carried to an extreme, and I may also add that the study of literature has been carried on by what might be termed the genuine "laboratory method," in that we take the passage to be studied and dissect it till the life and thought and meaning of the author have disappeared in the study of the small minute section that we have under the literary microscope. It seems to me that we should protest against that phase of our English teaching; also against the fact that our reading is compulsory. What is read is often beyond the comprehension of the student unless dissected in this manner, and therefore it lacks the interest of the

" Diamond Dick " series that the student has so frequently in the pocket of his coat while he is listening to or reading Burke's speech on " Conciliation." I would suggest to you that more regard be paid in the books selected to the understanding and the taste of the student, rather than to the opinion of the committees having these courses of literature in hand. It would seem that the colleges of the United States might pay more regard to the reading tastes of the secondary school students. If we had half a dozen classics in English which would set the style of the English language for all time, our task would be a small one; but I trust that you will agree with me that our tongue is constantly changing, that our literature is constantly growing and that even Shakspere and Milton are hardly selected for style by the writers of today. Then I wish we could get the student to read good books by applying his new interest on the old. A boy can not be driven from detective stories to philosophic essays and be filled with life and interest that will make the thought of the author his own. Our present course of reading and study for admission to college includes at the present time three plays of Shakspere, one of which is to be studied critically; four of Milton's shorter poems; a careful argument and two critical essays, all of which are for careful study. Then we have Addison's essays, three English novels, three poems and one critical essay. In the whole list I find but one American author represented; and it seems to me that, if we are to inculcate the spirit of our country, the thought and the literary ability of our own writers, even though we are an offshoot and a growth from the old English stock—it seems to me that the list for admission to college, in order to inculcate this spirit of Americanism, should include more American authors. The recorded judgment of 2500 secondary school pupils ranging in age from 14 to 19 years—and these students came from schools of all sorts and conditions—suggested that there be added to the list the works of Robert Barre, Longfellow, Tennyson, Bulwer and Walter Scott, while Addison, Carlyle and Pope were blacklisted.

Then I would suggest that we have better teaching of reading in the lower grades. This is a hint for the normal schools. I believe that our grade teachers should be able to read so that they will bring out the thought and spirit of the author, and present these to the student so that he will glow with the same frenzy that animated the author. I know of but one instance where a school employs a teacher to teach reading simply, and where this classical literature is so presented to the students that they respond. On the other hand, I know school after school where the reading is carried on perforce rather than through interest. I believe that we should have more interest in good literature in the schools, and that teachers should pay more attention to the written and oral language, to express the elevated and noble ideals of common life, and less attention to the dissection of words and paragraphs and analysis in our teaching of grammar; a wider range of choice in the reading courses for admission to college; but, best of all, we should have teachers who may interpret the spirit of good literature in an interesting manner, making the spirit of the author their own. I believe that the present method in many cases does not attain the object desired.

Prin. T. B. Lovell—I beg leave to make some statements with reference to the topic that has just been presented to you. The burden of discussion yesterday rested on the members of the committee. It was my thought that the subject presented to the principals yesterday should be discussed by them in order that the committee might know their wishes regarding the pamphlet offered. Some have raised the question, who was the father of it? Well, we were a committee of five, and all of us had something to do with it. The first report was sent to me by mail by Dr Kellogg and the next one by Dr. Hart, and from these two reports was made a report in which both were represented, from that report another was made by the secretary, and from this another was made by the chairman. Superintendent Kennedy sent in no report, but sent several letters to me and to some of the other members of the committee, dissenting very much from certain propositions in the report, and I think it only justice to him to say that he is quite opposed to the report in the matter of the study of grammar, and he would say so if he were here today. The report was presented to you for study and discussion; and I beg leave to say that it is the intention at least of the chairman to send 10 or 20 questions or statements to a large number of the principals of the State to obtain their opinion on certain things in the report and some things not in it—some things pertaining to the study of grammar and of rhetoric, some things pertaining to the elementary course, whether the course in elementary English should be strengthened in accordance with the sentiment of the last speaker (and I agree with him in many things), whether it is desirable to increase the number of books or subjects in each year found in this report beginning with the 14th page. We have the *Lady of the Lake* and the *Ancient Mariner*—two poems, *Ivanhoe* and the *Vision of Sir Launfal*, but there are 30 books mentioned at the end of this first year report. The question to be asked of you is whether there should be included with these four texts one or two selections from that list. The desire of the committee is to ascertain the sentiment of the academic principals of the State. We are ready to make some changes, but what changes you must determine, as the committee is made up of men in different positions in school life—Dr Hart, the professor of rhetoric, literature and philology in Cornell University, Dr Kellogg, the distinguished author of books on literature, in the Polytechnic Institute of Brooklyn, Superintendent Kennedy of Batavia, Principal Marvin, at the head of the high school in Schenectady, and myself, at the head of the high school in Niagara Falls. But, while we have these diversified interests, we desire very much the cooperation of the principals of the State during the next five or six months, and we will incorporate their ideas as far as possible in the report yet to be presented. I beg leave to say that the report presented to you yesterday embodied in it many criticisms which were submitted by Dr Hart and also by Dr Kellogg. Dr Kellogg, as you judged from his remarks of yesterday, is very emphatic in regard to the study of grammar and rhetoric. Dr Hart, as you will observe, is opposed to that. My own idea is that the high schools of the State are not quite ready to drop out the study of grammar for the first 20 weeks of the first year, that is, with the same preparation that students now have in elementary English. But this is provided for in the report given to you. If you will notice, it begins on the 8th page with the terms in grammar from a noun through to the terms in analysis; also many of the terms prescribed in rhetoric are given there, and a textbook in rhetoric is advised, but it is not advised for reference only; a grammar is advised for reference. I differ in that from the committee. We wish to have from you an expression of opinion later in writing.

Prof. William D. Lewis—I want to say one or two things about this much abused report, which seems to be thrown on the world without anybody to stand sponsor for it. There are doubtless many things in it with which we should not agree; there are some that I think commendable. In the first place, the discussion this morning and the discussions I have heard from various men who are doing work in English lead me to the conclusion that there are two chief ends in our English teaching, good English in oral and written composition and an appreciative knowledge of good literature. It seems to me that these are the things for which we study English. We have gotten away from the idea of studying a list of books, we have certainly gotten away from the idea of grammar alone and for itself, valuable as it may be. There seems to be a very general sentiment that there should be a diminution in the amount of formal grammar, that there should be only so much of formal grammar and of rhetoric as can be made useful in compassing the true ends of our composition work. There seems also to be a general feeling that more freedom should be given to the individuality of the teacher. These ends, I believe, will be reached through the adoption of a syllabus along the general lines of the one which was presented to us yesterday. Doubtless there must be many changes; but I believe that we must commend where commendation is due, and the general plan seems to me very creditable.

Dr Roland S. Keyser—There is one thing I should like to say. The first time I ever attended an educational meeting, as a small boy who wandered into a teachers institute, I heard the conductor telling about the evils of our study of English grammar, and I have heard it in almost every educational conference where the subject of English has been discussed from that time to this. Now it happens in our own school that our pupils are admitted on high school diplomas and are graduates of New York high schools; and the two subjects in which they have the greatest difficulty in making their credits in the normal school are grammar and arithmetic. I do not think we have had too much formal grammar. We have emasculated it till there is not much left of it, and it seems to me too bad that the poor remains should receive so much attention.

I should like to dissent, again, from what has been said about the character of the English teaching in this State 12 years ago. I was a principal in this State 12 years ago, and I am sure that even in the small school of which I had charge there was no such condition of English work. I was interested in visiting other schools in order to improve my own, and I visited no school that I can remember in which the English work was in the condition that we heard stated today. Now, when a man's experience is unfortunate, it seems to me that he ought not to say that the experience of the State is unfortunate. I believe that 12 years ago, at least in a very considerable number of schools, the teaching of English was used to inculcate a love of English literature by the reading of English authors, and that an attempt was made in a very large number of schools to teach English composition by using the great English authors as an example; and I think, if the gentleman would recall the discussions in this association more than 12 years ago, the general type of feeling in regard to the work in English was just about the same as it is today. We have made, I am glad to say, substantial progress in the English work in this State, but we ought not to belittle the work that was done even by some of us a few years ago.

I think it is true that the schools of New York State have improved more in writen expression than in any other phase of the work. In the six years that I have been connected with the normal schools I have noticed that there is a steady improvement in the character of the writing that I get from high school graduates; and I conclude that a good portion of this improvement is due to the fact that our interest in English work has been going on long enough now for us to get some results from the work that has been done in the grades below the high school. We may improve our high school methods some all the time; but it seems to me that the great chance for improvement in English in this State is in getting a much larger amount of good English work done in the grades.

Sup't Gurdon R. Miller—I have just one thought to present. I think the committee should have referred to the elementary course and should have recommended increased work at that point. I think they ought not to pass that by. This is a secondary association, and you naturally hesitate to tell us what to do in grammar work; but we are ready to do more, and Dr Keyser has given us the thought that we ought to act on in grammar school work.

Principal Lovell—I beg leave to say that Commissioner White has charge of the syllabus committee on the elementary subjects, including elementary English, and he says his committee is studying that subject for the purpose of strengthening the work in elementary English and leading it up to a higher grade than heretofore.

Prin. W. J. Deans—I did not intend to say anything, but, as Mr White is not present, I will say that we are working along those lines and intend to bring out those facts in our report.

REPORT OF COMMITTEE ON NECROLOGY

Principal Lovell—The report of this committee is necessarily very brief, as it is the first committee on the subject that has been appointed during the life of the association, and it was late before we could obtain information to use in the report. Some of the items are still incomplete; and, before reading, I beg to ask you to send to the chairman of the committee at any time any names and history of persons who die within the coming year, so that next year the report may be more complete.

Milne. Dr James M. Milne died suddenly Nov. 5, 1903, while seemingly at the hight of his power. He was born in Scotland in 1850. He was a graduate of the Geneseo Normal School and of Rochester University. For 15 years he was teacher of Latin and Greek in the Normal School at Cortland and for nine years principal of the Normal School at Oneonta. He was a typical school man, and his leaving the profession was a cause of regret. He was a master of English and ranked high as an orator.

Lowry. Miss Jane E. Lowry, teacher of mathematics and Latin in the Brockport Normal School, died Sep. 7. Miss Lowry had been a teacher in the school for many years. Her pupils will remember her as one of the firmest and kindest of women. Probably no teacher of her time possessed a keener intellect or a greater devotion to duty.

Stout. At sunrise on Nov. 9, the day of Dr Milne's funeral, Isaac H. Stout passed peacefully into another world. The following sketch appears on page 262 of Bardeen's *Dictionary of Educational Biography.*

> *Isaac H. Stout* (American, 1846—), supervisor of teachers institutes, after a partial course in civil engineering began in 1862 to teach in district schools; was in the army 1864–5; assisted in surveying for the Kansas division of the Union Pacific Railway in 1866; and was principal at Lodi, Farmer (11 years) and Dundee Academy N. Y. He was school commissioner of Seneca county 1878–84; assisted Dr John H. French in writing *Harper's Advanced Arithmetic,* 1886-87. In 1887 he became institute conductor, and so continued till in 1898 he became supervisor of teachers institutes for the State of New York. As an institute instructor he was noted for the application of shrewd common sense, and for dealing with topics outside the curriculum which yet have bearing on the welfare of the school. He has given frequent illustrated lectures not only before institutes but before the Albany Historical Society.

He was buried at Farmer Nov. 11, several representatives of the Department of Public Instruction being present. Memorial service was held in the department on Nov. 23, and remarks were made by the state superintendent, by Conductors Sanford, Shaver, Miss Rice, Mrs Anna Eggleston Friedman, Dr Redway, by Principals Bugbee and Cheeney, Superintendents Shear and Blodgett, and President Davis of Alfred University.

Hoffman. Lewis Wallace Hoffman died at Rockville Center July 21, of apoplexy, being stricken Sunday evening and remaining unconscious till his death Tuesday morning. He was a graduate of Ohio University and had been teaching 14 years, four at Brookfield, nine at Warwick and one at Rockville Center. He was actively interested in the prominent educational meetings of the State and had been a regular attendant of this association for 10 years. By his death we have lost a growing principal, and the State a strong educator.

Cutting. The Rev George R. Cutting, the founder of this association, died Dec. 29. In 1885 he wrote to many principals of the State, inviting them to a meeting in Syracuse to consider the subject of an annual meeting for the purpose of discussing topics of interest to the high schools of the State. This meeting was held in the old high school building. Principal Cutting was the first presiding officer. Within a year or two he resigned his principalship at Auburn and entered the ministry. He was a successful teacher and also a successful pastor. Perhaps the noblest work he did is represented in this association and its success. We place on record this expression of our regard for him and our sincere regret at his death.

Farr. Daniel C. Farr, who died Dec. 17, was among those who answered this call to found a principals association. He has been a constant and faithful member, participating in its councils, entering into its discussions and contributing by his geniality, courtesy and comradeship to its success. He was the honored president in 1899, and shared in the labors of the executive council. He was unusually successful as a teacher, leaving on his pupils the influence of his strong moral character. He was a thorough Christian gentleman, and no one will be missed more by those who were among the founders of this association than he. We desire to record our sorrow at his death and to place on record this brief testimony to his excellence as a gentleman, to his talents as a teacher, to his moral worth as a Christian, to his geniality as a comrade, to his interest in this association.

Final reports and miscellaneous business

Sup't J. C. Norris—I have been asked by Mr Boynton, the chairman of our syllabus committee, to take on myself the chairmanship of this new committee to investigate the changes needed in the program of examinations. In former years we have wasted a great deal of time in discussion of the program. No program could possibly be arranged that would suit everybody. The other members of the committee as I remember them are Wilcox, of Rochester, Deans, of Palmyra, Thompson, of Penn Yan, Clarke, of Honeoye Falls. We want to find out what you want. The Regents have no wish in the subject except to please you. You will notice that these men are neighbors of mine, and we can get together very easily. I propose within a few days to call the committee together, and we will send out a statement to you and ask you to give it good, wholesome thought and tell us what you want. I do not know that I can say anything further except that we shall be prepared to have our report published with the rest of the syllabus reports next year.

Sup't Henry P. Emerson—I wish to speak for a moment in regard to an educational meeting in which I am very much interested and for which I feel considerable responsibility, that is the meeting of the superintendents at Atlanta Ga. in February. I suppose you all know that the general meeting of the National Educational Association is held in the summer, in July. It is to be held next year in St Louis. But the superintendents also hold a meeting by themselves the last week in February. For the coming year the meeting is to be held in the south, and I am very anxious that there shall be a good attendance. I do not suppose there will be very many of the principals who will find the time to go so long a distance; but I want to assure you that no pains have been spared to prepare a good program for the meeting. Atlanta is a pleasant place to visit, a locality of historic interest, and our southern meetings are apt to be not so well attended as our northern meetings. Usually, there is a strong opposition to going south, and I am specially anxious to show that there can be a successful meeting held south of Mason and Dixon's line. I wish you would help in giving the widest possible publicity to the meeting to be held at Atlanta.

Prof. George P. Bristol—I want to ask every one of you to cooperate with the committee of the State Teachers Association in making the meeting to be held at Ithaca on the 5th, 6th and 7th of next July a great success. I ask you to meet with us if you can, and to use your influence to get others to come. I make this request as a member of the local committee. I further make the request on behalf of Cornell University, on whose invitation the association will meet at Ithaca next summer. For the association, I need hardly say to you that it has claims on your fidelity, I think, as the oldest educational association in the United States, an association with an honorable history in the State of New York; further, as the only organization of educators in the State of New York which represents all grades and classes of education. It is the one which has no dividing line horizontally, and which has a reasonable claim on the attention of every teacher in the State of New York.

In behalf of the committee I may say that we expect to have a program which will be well worth your attendance. In behalf of the university, I invite you to see the university's educational plant, which we mean to exhibit in as full a manner as possible. I invite you then in behalf of the association and in behalf of the university, and I feel warranted, in view of the character of the association and its interests, in urging a large and generous attendance.

President Armstrong—Mr President, I congratulate you most heartily on your election to this office. I want to assure you that, when I was elected, I felt that the greatest honor had been conferred on me that has ever been conferred. I have had an unusually strenuous year, and, in passing over the office to you, I want to assure you that I am performing the most happy act of my administration. I predict for you a successful year, and I trust that you will enjoy presiding over this distinguished assembly.

President-elect Conant—I thank you, Mr President and gentlemen of the association, for this great honor. Before saying anything more, and I shall say very little, I think that I should express to you in all justice the thanks of this association for the work which you have performed during this last year. However we may feel on the matters that have come before you for consideration, I think both opponents and those who agree with you will give you at least respect; that you have been honest and faithful in all that you have done; that you have striven as you have seen best; and you have done more perhaps to raise the professional condition of school men than you realize by taking the stand that a man in school work is just as good as a man in any other kind of work and can stand up to what he believes to be right, regardless of the consequences. I believe that you have strengthened not only the association by your action during the past year, but that you have strengthened yourself. I think that the association believes that what has been done has been for the best interests of our association, and should questions arise again similar to those that have come before us during the past year, I have no doubt that something of the same stand will be taken. I believe that is only carrying out the policy of a majority of this convention. However, should the majority demand otherwise, we are only the servants of the association. But, feeling as I do at present, I shall be satisfied if only I can carry out your policy and hand over the gavel with the same feeling of fidelity and of striving for the best interests of those that are concerned. I thank you, gentlemen, for this honor.

ATTENDANTS AT

19th Annual Conference of the Associated Academic Principals

Under names of institutions those not specially designated are teachers and instructors.

UNIVERSITY OF THE STATE OF NEW YORK

University staff

Administrative Department. 1 James Russell Parsons jr M.A. LL.D. *secretary*

College and High School Department. 2 Henry L. Taylor M.A. Ph.D. *director's assistant*

Inspection division. 3 Charles F. Wheelock B.S. *head inspector;* 4 Charles Newell Cobb M.A.; 5 Charles Davidson M.A. Ph.D.; 6 Eugene W. Lyttle M.A. Ph.D.; 7 S. Dwight Arms M.A.; 8 Ezra J. Peck M.A. LL.D.; 9 E. S. Frisbee M.A. D.D.; 10 I. O. Crissy, *inspector business education;* 11 James H. Gibson, *apparatus inspector;* 12 Frederic M. Baker, *apparatus clerk*

Home Education Department. 13 William F. Yust M.A. B.L.S. *sub-inspector.*

DEPARTMENT OF PUBLIC INSTRUCTION

14 Danforth E. Ainsworth, *deputy superintendent;* 15 Hiram C. Case, *statistical clerk;* 16 L. O. Wiswell, *librarian;* 17 Philip M. Hull M.A.; 18 Charles A. Shaver, 19 Sherman Williams Pd.D., *institute conductors;* 20 Frank H. Wood M.A. *supervisor of training classes;* 21 John C. Bliss B.A., 22 A. C. Hill Ph.D. *inspectors of training classes;* 23 W. J. Barr, *inspector compulsory attendance*

INSTITUTIONS IN THE UNIVERSITY

Colleges for men

Canisius College. 24 Rev. F. X. Sindele

Colgate University, Hamilton. 25 Prof. John Greene

Hobart College. 26 Pres. Langdon C. Stewardson

Polytechnic Institute, Brooklyn. 27 Prof. Brainerd Kellogg

St John's College, Brooklyn, 28 Rev. E. L. Carey, *secretary*

Colleges for men and women

Cornell University, Ithaca. 29 Guy Montrose Whipple; 30 Prof. Charles E. Bennett; 31 Prof. George P. Bristol; 32 Prof. J. M. Hart

Keuka College, Keuka College. 33 Pres. George H. Ball

Schools of education

New York State Normal College, Albany. 34 Pres. William J. Milne

Teachers College, Columbia University. 35 Prof. Benjamin R. Andrews

Academies, high schools and academic departments

Adams High School. 36 Prin. R. H. Snyder
Addison High School. 37 Prin. F. K. Congdon
Akron High School. 38 Prin. A. T. Rinker
Albany High School. 39 Eugene D. Holmes
Alden Union School. 40 Prin. B. N. Shields
Alexandria Bay High School. 41 Prin. H. B. Jones
Alfred Academy. 42 Prin. E. P. Saunders
Allegany High School. 43 Prin. W. Almon Andrews
Altamont Union School. 44 Prin. Arthur Z. Boothby
Altmar Union School. 45 Prin. Alfred S. Bassette
A. M. Chesbrough Seminary. 46 Prin. Benson H. Roberts
Amenia Union School. 47 Prin. J. T. P. Calkins
Amsterdam High School. 48 Vice Prin. E. C. Wixom
Andes High School. 49 Prin. Montgomery C. Smith
Andover High School. 50 Prin. Angelo O. Tucker
Angola High School. 51 Prin. J. M. Crofoot
Antwerp High School. 52 Prin. Albert T. Bouck
Argyle High School. 53 Prin. E. M. Sanford
Attica High School. 54 Prin. Arthur M. Preston
Auburn High School. 55 Sup't Clinton S. Marsh; 56 Warrington Somers
Avoca High School. 57 Prin. E. F. Down
Babylon High School. 58 Prin. W. H. Lisk
Bainbridge High School. 59 Prin. Fred W. Crumb
Baldwinsville Free Academy. 60 Prin. Horace D. Rickard
Ballston Spa High School. 61 A. A. Lavery, *supervising principal*
Batavia High School. 62 Prin. E. A. Ladd
Bay Shore High School. 63 Prin. Charles W. Mulford; 64 Vice Prin. George H. Smith
Belmont High School. 65 Prin. C. H. Munson
Binghamton High School. 66 Sup't G. R. Miller; 67 Prin. J. Edward Banta
Black River Union School. 68 Prin. A. E. House
Bolivar High School. 69 Prin. Charles D. Hill
Brier Hill Union School. 70 Prin. Rupert Nisbeth
Brocton High School. 71 Prin. C. W. Whitney
Buchanan Union School. 72 Prin. Arthur Chamberlain
Buffalo. 73 Sup't Henry P. Emerson
Burdett Union School. 74 Prin. Earl J. Snyder
Caledonia High School. 75 Prin. Fayette W. Van Zile
Callicoon Depot Union School. 76 Prin. Levi R. Tubbs
Cambridge High School. 77 Prin. Fred J. Bohlmann
Camillus Union School. 78 Prin. C. S. Boatfield
Canajoharie High School. 79 Prin. Ernest E. Smith
Canandaigua Academy. 80 Sup't and Prin. J. C. Norris
Canastota High School. 81 Prin. George H. Ottaway
Canisteo High School. 82 Prin. Frank F. Dunham
Canton High School. 83 Sup't and Prin. C. L. Mosher
Castile High School. 84 Prin. H. P. Weatherlow
Castleton Union School. 85 Prin. Elias Gay

Cato Union School. 86 Prin. Walter S. Herrick
Cattaraugus High School. 87 Prin. Burtis E. Whittaker
Cayuga Union School. 88 Prin. A. W. Armitage
Cazenovia Seminary. 89 Pres. Francis D. Blakeslee
Charlotte High School. 90 Prin. H. G. Reed
Chateaugay High School. 91 Prin. Leon Grady
Chatham High School. 92 Prin. Charles S. Williams
Cherry Creek High School. 93 Prin. Owen C. Presler
Cherry Valley High School. 94 Prin. Menzo Burlingame
Churchville High School. 95 Prin. Nicholas Lee
Clayton High School. 96 Prin. Ernest Robinson
Clifton Springs High School. 97 Prin. Kennington L. Thompson
Clinton High School. 98 Prin. Percy L. Wight
Coeymans Union School. 99 Prin. H. C. W. Kingsbury
Cohocton High School. 100 Prin. G. H. Guinnip
Collins Center Union School. 101 Prin. Charles M. Lash
Commercial High School, Brooklyn. 102 Prin. Frank R. Moore
Constableville Union School. 103 Prin. H. G. Grubel
Cook Academy, Montour Falls. 104 Prin. F. L. Lamson
Cooperstown High School. 105 Prin. W. D. Johnson
Corning Free Academy. 106 Sup't and Prin. Leigh R. Hunt
Cornwall High School. 107 Prin. Herman C. Woodworth
Cornwall-on-Hudson High School. 108 Prin. Fred C. White
Cortland High School. 109 Sup't and Prin. F. E. Smith; 110 Vice Prin. Fannie M. Galusha
Coxsackie High School. 111 Prin. George W. Fairgrieve
Cuba High School. 112 Prin. W. D. Hewes
Dansville High School. 113 Prin. E. J. Bonner
Delaware Academy and Union School, Delhi. 114 Prin. O. W. Wood
Delaware Literary Institute and Union School, Franklin. 115 Prin. James Edward Smith
Depew Union School. 116 Prin. H. C. Hustleby
Deposit High School. 117 Sup't and Prin. W. L. Harris
De Ruyter High School. 118 Prin. George B. Roorbach
Dexter High School. 119 Prin. Burt W. Alverson
Dolgeville High School. 120 Prin. James Eggenberger
Dryden High School. 121 Prin. Frederick P. Webster
Dundee High School. 122 Prin. E. J. Bond
Dunkirk High School. 123 Prin. George M. Wiley
Earlville High School. 124 Prin. F. M. Markham
East Aurora High School. 125 Prin. Aretus P. Burroughs
East Bloomfield High School. 126 Prin. F. Bird Jones
East Pembroke Union School. 127 Prin. H. William Dyer
East Rockaway Union School. 128 Prin. C. D. Vosburgh
East Syracuse High School. 129 Prin. F. H. Brown
Edwards Union School. 130 Prin. Charles A. Brownell
Egberts High School, Cohoes. 131 Sup't Edward Hayward; 132 Prin. William Carleton Tifft
Elbridge Union School and Academy. 133 Prin. Harry E. Elden
Ellenville High School. 134 Sup't and Prin. E. C. Hoemer
Ellington High School. 135 Prin. E. A. Reuther

Elmira Free Academy. 136 Sup't Charles F. Walker; 137 Prin. Howard Conant

Elmsford Union School. 138 Prin. Frank D. Simons

Essex Union School. 139 Prin. C. H. Stafford

Fabius High School. 140 Prin. H. E. Bradley

Fair Haven Union School. 141 Prin. L. G. Turney

Fairport High School. 142 Arthur C. Nute, *supervising principal*

Falconer High School. 143 Prin. George R. Raynor

Farmer Union School. 144 Prin. Roger A. Spencer

Fayetteville High School. 145 Prin. Dwight B. Williams

Fonda High School. 146 Prin. Horace W. B. Smith

Forestport Union School. 147 Prin. W. G. Cruikshank

Forestville Free Academy. 148 Prin. A. C. Anderson

Frankfort High School. 149 Prin. F. J. Medden

Fraser Union School, Hastings-upon-Hudson. 150 Prin. W. R. Williams

Freeport High School. 151 Prin. Eugene F. McKinley

Freeville Union School. 152 Prin. Benjamin B. Chappell

Frewsburg Union School. 153 Prin. Harold J. Russell

Friendship High School. 154 Prin. W. W. Miller

Fultonville High School. 155 Prin. O. C. Hotchkiss

Georgetown Union School. 156 Prin. Louis A. Bean

Gloversville High School. 157 Sup't James A. Estee; 158 Prin. A. R. Brubacher

Goshen High School. 159 Prin. Guy Halsey Baskerville

Gowanda High School. 160 Prin. Robert W. Hughes

Granville High School. 161 Prin. R. E. Brown

Great Neck High School. 162 Prin. Fred J. Bierce

Greenwich High School. 163 Prin. C. L. Morey

Griffith Institute and Union School, Springville. 164 Prin. George A. Bolles

Groton High School. 165 Prin. J. Wells Reed

Guilford Union School. 166 Prin. J. S. Childs

Hamburg High School. 167 Prin. Benjamin G. Estes

Hammond Union School. 168 Prin. J. B. Laidlaw

Hammondsport High School. 169 Prin. Myron C. Plough

Hannibal Union School. 170 Prin. S. R. Lockwood

Harrisville Union School. 171 Prin. W. L. Avery

Haverling High School, Bath. 172 Prin. W. T. Palmer

Hempstead High School. 173 Prin. Ezra Fred Knapp

Herkimer High School. 174 Sup't Schuyler F. Herron

Hobart High School. 175 Prin. Jay D. Lester

Holley High School. 176 Prin. H. D. Bartlett

Honeoye Falls High School. 177 Prin. W. G. Clarke

Hoosick Falls High School. 178 Sup't and Prin. H. H. Snell

Hornellsville High School. 179 Sup't and Prin. Elmer S. Redman

Horseheads High School. 180 Prin. John P. Mabon

Hunter Union School. 181 Prin. Burt H. Boorn

Huntington High School. 182 Prin. Arthur E. Chase

Irondequoit Union School. 183 Prin. A. M. Baker

Irvington High School. 184 Prin. R. A. Mac Donald

Ithaca High School. 185 Sup't and Prin. F. D. Boynton

Jamestown High School. 186 Prin. M. J. Fletcher
Jamesville High School. 187 Prin. Wallace W. Rayfield
Jordan Free Academy. 188 Prin. R. B. Searle
Keeseville High School. 189 Prin. Ernest E. Hinman
Kinderhook Union School. 190 Prin. Earl B. Slack
Kingston Free Academy. 191 Sup't S. R. Shear
Knowlesville Union School. 192 Prin. William H. Irvine
La Fayette Union School. 193 Prin. E. B. Robinson
Lake George Union School, Caldwell. 194 Prin. James A. Barkley
Lake Placid High School. 195 Prin. Myron J. Van Ness
Lancaster High School. 196 Sup't and Prin. Burt B. Farnsworth
Lawrence High School. 197 Prin. Fred De L. King
Leavenworth Institute and Wolcott High School, Wolcott. 198 Prin. Lewis H. Carris
Le Roy High School. 199 Sup't and Prin. John C. Benedict
Lestershire High School. 200 Prin. Frank M. Smith
Lewiston Union School. 201 Prin. Joseph P. Behm
Liberty High School. 202 Prin. H. M. Dann
Little Falls High School. 203 Sup't and Prin. C. H. Warfield
Little Valley High School. 204 Prin. E. B. Luce
Livonia High School. 205 Prin. C. G. Sanford
Lockport High School. 206 Prin. O. J. Morelock; 207 Alexis V. Müller
Longlake Union School. 208 Prin. John C. Malloch
Lowville Academy. 209 Prin. W. H. Perry
Luzerne High School. 210 Prin. Christopher Keller
Lyons High School. 211 Prin. W. H. Kinney
Lyons Falls High School. 212 Prin. S. J. Neff
Macedon High School. 213 Prin. H. F. Collister
McGrawville Union School, McGraw. 214 Prin. L. R. Mooney
Manchester Union School. 215 Prin. Charles H. Herrick
Manlius High School. 216 Prin. A. S. Knapp
Marathon High School. 217 Prin. P. M. Helfer
Marion Collegiate Institute. 218 Prin. Hosea Clark
Marlboro Union School. 219 Prin. R. A. Mable
Massena High School. 220 Prin. J. L. Walthart
Masten Park High School, Buffalo. 221 Prin. Frank S. Fosdick
Medina High School. 222 Sup't and Prin. T. H. Armstrong; 223 Vice Prin. Ralph Mosher
Meridian Union School. 224 Prin. George W. Lyon
Mexico Academy and High School. 225 Prin. A. H. Norton
Middleburg High School. 226 Prin. S. C. Kimm
Mineville High School. 227 Prin. S. D. McClellan
Mohawk High School. 228 Prin. S. A. Watson
Montgomery High School. 229 Prin. J. I. Harkness
Moravia High School. 230 Prin. John D. Bigelow
Morris High School. 231 Prin. Calvin Derrick
Morristown Union School. 232 Prin. J. B. Lawrence
Morrisville High School. 233 Prin. Clayton G. Mabey
Mt Upton Union School. 234 Prin. E. H. Burdick
Mt Vernon High School. 235 Prin. A. B. Davis
Mumford Union School. 236 Prin. William E. Bissell

Munnsville Union School. 237 Prin. Edson A. Fuller

Napanoch Union School. 238 Prin. Walter H. C. Ensign

Newark High School. 239 Prin. C. A. Hamilton

New Berlin High School. 240 Prin. Arthur R. Mason

New Hartford High School. 241 Prin. A. M. Scripture

New Rochelle High School. 242 Sup't I. E. Young

New York Mills Union School No. 2. 243 Prin. Ray P. Snyder

New York State School for the Blind, Batavia. 244 Sup't and Prin. O. H. Burritt

Niagara Falls High School. 245 Sup't R. A. Taylor; 246 Prin. Thomas Bailey Lovell

Nichols Union School. 247 Prin. Frank E. Fenno

North Brookfield Union School. 248 Prin. John Hart

North Cohocton and Atlanta Union High School. 249 Prin. W. Wallace Bullock

North Collins High School. 250 Prin. W. B. Blaisdell

North Olean High School, Olean. 251 Prin. Frederick W. Mundt

North Tarrytown Union School. 252 Prin. Lewis W. Craig

North Tonawanda High School. 253 Sup't Frank J. Beardsley; 254 Prin. Edwin M. Randolph

Northside High School, Corning. 255 Prin. A. M. Blodgett

Norwich High School. 256 Prin. B. C. Van Ingen

Norwood High School. 257 Prin. Clarence A. Fetterly

Nunda High School. 258 Prin. George E. Baldwin

Oakfield High School. 259 Prin. A. H. Downey

Ogdensburg Free Academy. 260 Sup't H. H. Southwick; 261 Prin. Fred Van Dusen

Olean High School. 262 Prin. W. S. Steele

Oneida Castle Union School. 263 Prin. W. H. Wheeler

Oneonta High School. 264 Prin. R. S. Roulston

Onondaga Free Academy, Onondaga Valley. 265 Prin. Guy A. Bailey

Ontario High School. 266 Prin. H. S. G. Loveless

Orchard Park High School. 267 Prin. Frederic A. Peek

Oriskany Union School. 268 Prin. Floyd Hurlbut

Ossining High School. 269 Prin. Ida W. Bennett

Oswego High School. 270 Prin. Charles W. Richards

Owego Free Academy. 271 Sup't E. G. Bridgham; 272 Prin. H. L. Russell

Oxford Academy and Union School. 273 Prin. Robert K. Toaz

Oyster Bay High School. 274 Prin. B. Frank Cooley

Palmyra Classical High School. 275 Prin. W. J. Deans

Parish High School. 276 Prin. George B. Marble

Patchogue High School. 277 Prin. W. E. Gordon

Penn Yan Academy. 278 Sup't J. M. Thompson; 279 Prin. L. D. Wilcox

Port Byron High School. 280 Prin. Edson L. Moore

Port Henry High School. 281 Prin. P. F. Burke

Port Jervis High School. 282 Prin. Edward P. Smith

Port Washington Union School. 283 Prin. C. O. Niles

Portville Union School. 284 Prin. Frederick R. Darling

Poughkeepsie High School. 285 Sup't William Alexander Smith; 286 Prin. Clarence H. Woolsey

Pulaski Academy and Union School. 287 Prin. Charles M. Bean

Ravena High School. 288 Prin. Benjamin I. Morey

Red Creek Union Seminary. 289 Prin. Ira M. Gast

Rochester High School. 290 Prin. Albert H. Wilcox; 291 Prin. Louis H. Miller; 292 Frederick H. Abell; 293 Ernest R. Clark

Rome Free Academy. 294 Sup't Lewis N. Crane

Round Lake Union School. 295 Prin. J. W. Root

Rushford High School. 296 Prin. Frederick Leighton

Rye Union School. 297 Prin. Forrest T. Shutts

S. S. Seward Institute, Florida. 298 Prin. Norman C. Gile

St Francis Academy, Brooklyn. 299 Brother Raphael, *principal*

St Johnsville High School. 300 Prin. E. C. Miller

Sandy Creek High School. 301 Prin. George E. Brownell

Sandy Hill High School. 302 Prin. Frances Tefft

Saratoga Springs High School. 303 Sup't Thomas R. Kneil; 304 Prin. G. W. Kennedy

Saugerties High School. 305 Prin. Samuel B. Howe jr

Savannah High School. 306 Prin. Raymond B. Gurley

Schaghticoke High School. 307 Prin. Wellington E. Van Wormer

Schenectady Union Classical Institute. 308 Prin. Arthur Marvin

Schenevus High School. 309 Prin. E. M. Sanders

Schoharie High School. 310 Prin. R. V. Spencer

Scottsville Union School. 311 Prin. Burr Gould Eells

Sharon Springs High School. 312 Prin. J. H. Crain

Shelter Island Union School. 313 Prin. Randolph F. Clark

Sherburne High School. 314 Prin. F. M. M. Hull

Sidney High School. 315 Prin. James M. Glass

Silver Creek High School. 316 Prin. Edwin J. Howe

Sinclairville High School. 317 Prin. C. F. Walter

Skaneateles High School. 318 Prin. D. B. Smith

Sloan Union School. 319 Prin. A. E. Cook

Smyrna Union School. 320 Prin. H. W. Butts

Solvay High School. 321 Sup't C. O. Richards

South Otselic Union School. 322 Prin. John C. McCarthy

South Side High School, Rockville Center. 323 Prin. Andrew J. MacElroy

Southampton High School. 324 Prin. J. G. Peck

Southold Union School. 325 Prin. William M. Wood

Spencer High School. 326 Prin. J. W. Wiseman

Spencerport High School. 327 Prin. John Edmond Du Bois

Springfield Center Union School. 328 Mrs G. H. Franklin, *principal*

Spring Valley High School. 329 Prin. John M. Gibbs

Stillwater High School. 330 Prin. H. J. Gibson

Stony Point High School. 331 Prin. George D. Sykes

Syracuse Business High School. 332 Prin. Henry H. Denham

Syracuse High School. 422 William D. Lewis M.A.

Tappan Zee High School, Piermont. 333 Prin. Leon J. Cook

Theresa High School. 334 Prin. C. H. Bulson

Ticonderoga High School. 335 Prin. Fred V. Lester

Tioga Center Union School. 336 Prin. M. A. Matteson

Tivoli Union School. 337 Prin. Charles W. Townsend

Tonawanda High School. 338 Sup't Henry Wheaton; 339 Prin. Frank K. Sutley

Troupsburg Union School. 340 Prin. Grover C. Hosford
Troy High School. 341 Prin. M. H. Walrath
Trumansburg High School. 342 Prin. F. M. Westfall
Turin Union School. 343 Prin. V. K. Barker
Unadilla High School. 344 Prin. A. E. Barnes
Union High School. 345 Prin. James L. Lusk
Union Springs High School. 346 George F. Barford
Utica Free Academy. 347 Prin. Martin G. Benedict
Valley Falls High School. 348 Prin. Edwin C. Tibbitts
Victor High School. 349 Prin. Edward J. Rowe
Walton High School. 350 Prin. J. R. Fairgrieve
Walworth Academy. 351 Prin. E. H. Lomber
Wappingers Falls Union School. 352 Prin. Samuel Mansfield
Warsaw High School. 353 Prin. George W. Glasier
Warwick Institute. 354 Prin. H. V. Rulison
Washington Academy, Salem. 355 Prin. A. B. Vossler
Washingtonville Union School. 356 Prin. M. H. Traphagen
Waterford High School. 357 Prin. J. W. Currie
Waterport Union School. 358 Prin. A. R. Horton
Watervliet High School. 359 Prin. W. D. Shannahan
Watkins High School. 360 Prin. S. S. Johnson
Waverly High School. 361 Prin. P. C. Meserve
Waverly Union School of Tuckahoe. 362 Prin. Arthur C. Haff
West Carthage Union School. 363 Prin. H. C. Gouldin
West Winfield High School. 364 Prin. William G. Siddell
Westport High School. 365 Prin. Edgar W. Ames
Williamson High School. 366 Prin. E. G. Soper
Williamstown Union School. 367 Prin. H. F. Northrop
Williamsville High School. 368 Prin. Willard G. Welker
Willsborough High School. 369 Prin. B. L. Haydon
Wilson Academy, Angelica. 370 Prin. Charles W. Vandegrift
Windsor High School. 371 Prin. Carrol A. Mider
Yates High School, Chittenango. 372 Prin. William M. Fort

Special registered schools

Trinity Church School. 373 Rev. Lawrence T. Cole
Utica Preparatory School. 374 Prin. William S. Rix

OUTSIDE THE UNIVERSITY

Colleges for men

Williams College, Williamstown Mass. 375 Pres. Henry Hopkins

Normal schools

Brockport. 376 Prin. C. T. McFarlane; 377 Charles D. Seely
Buffalo. 378 Prin. James M. Cassety; 379 Mark M. Maycock
Cortland. 380 Prin. Francis J. Cheney; 381 F. R. Parker
Fredonia. 382 Prin. Francis B. Palmer; 383 H. L. Holcomb
Jamaica. 384 Roland S. Keyser
New Paltz. 385 Prin. Myron T. Scudder

New York Training School for Teachers. 386 E. N. Jones; 387 Welland Hendrick

Oneonta. 388 Frank D. Blodgett; 389 Arthur M. Curtis; 390 C. A. Schumacher

Potsdam. 391 Prin. T. B. Stowell

Academies, high schools and academic departments

East Orange (N. J.) High School. 392 Prin. Charles W. Evans

Lafayette High School, Buffalo. 393 Prin. Arthur Detmers

North East (Pa.) Borough High School. 394 Sup't and Prin. I. H. Russell

Pike Union School. 395 Prin. J. T. McGurren

The King School, Stamford Ct. 396 Bailey B. Burritt

Elementary schools

New York (Borough of Queens). 397 W. J. Ballard, *director of physical training*

Utica School 21. 398 Prin. H. W. Maxson

School commissioners

Constableville. 399 D. H. O'Brien

New York (Borough of Richmond). 400 D. L. Bardwell, *district superintendent*

Penn Yan. 401 N. Winton Palmer

Other teaching institutions

Webster Correspondence Law School, Tarrytown. 402 Dean A. W. Emerson

Not officially connected with educational institutions

403 J. S. Adams, Ginn & Co.
404 H. D. Bacon, Buffalo
405 C. T. Barnes, Sauquoit
406 B. F. Clark, Normal Teachers Agency
407 W. E. Cochrane, Prang Educational Co., Mt Vernon
408 James G. Coffin, Benj. H. Sanborn & Co.
409 E. L. Cummings, Milton Bradley Co., Lyons
410 E. W. Cutler, Henry Holt & Co.
411 De Lancey M. Ellis, director of education for State of New York at the St Louis Exposition, Rochester
412 Jesse A. Ellsworth, Macmillan Co.
413 George Fenton, American Book Co.
414 Reginald L. Fernald, Ginn & Co.
415 George C. Field, University Publishing Co.
416 H. I. Ford, Ginn & Co.
417 R. Foresman, Silver, Burdett & Co.
418 Hugo Froehlich, Prang Educational Co.
419 A. L. Hart, New York

420 F. C. Hodgdon, Ginn & Co.
421 W. D. Kerr, Fisk Teachers Agency
422 [*See* Syracuse High School, p. 467.]
423 E. N. McKinley, Buffalo
424 Rev. John F. Mullaney, Syracuse
425 Allen Peckham, Silver, Burdett & Co.
426 A. D. Perkins, D. C. Heath & Co.
427 John Probes, American Book Co.
428 P. A. Ray, D. C. Heath & Co.
429 John C. Rockwell, Schermerhorn Teachers Agency
430 Lincoln E. Rowley, American Book Co.
431 G. W. Smith, Trunk Line Ass'n
432 Clifford Stark, American Book Co.
433 A. M. Strong, Allyn & Bacon
434 K. N. Washburn, Springfield
435 Thomas C. Wilber, Geneva
436 Everitt Yeau, Maynard, Merrill & Co.

ALPHABETIC INDEX

Numbers refer to preceding classed list

Abell, F. H. 292
Adams, J. S. 403
Ainsworth, D. E. 14
Alverson, B. W. 119
Ames, E. W. 365
Anderson, A. C. 148
Andrews, B. R. 35
Andrews, W. A. 43
Armitage, A. W. 88
Arms, S. D. 7
Armstrong, T. H. 222
Avery, W. L. 171

Bacon, H. D. 404
Bailey, G. A. 265
Baker, A. M. 183
Baker, F. M. 12
Baldwin, G. E. 258
Ball, G. H. 33
Ballard, W. J. 397
Banta, J. E. 67
Bardwell, D. L. 400
Barford, G. F. 346
Barker, V. K. 343
Barkley, J. A. 194
Barnes, A. E. 344
Barnes, C. T. 405
Barr, W. J. 23
Bartlett, H. D. 176
Baskerville, G. H. 159
Bassette, A. S. 45
Bean, C. M. 287
Bean, L. A. 156
Beardsley, F. J. 253
Behm, J. P. 201
Benedict, J. C. 199
Benedict, M. G. 347
Bennett, C. E. 30
Bennett, I. W. 269
Bierce, F. J. 162
Bigelow, J. D. 230
Bissell, W. E. 236
Blaisdell, W. B. 250
Blakeslee, F. D. 89
Bliss, J. C. 21
Blodgett, A. M. 255
Blodgett, F. D. 388
Boatfield, C. S. 78
Bohlmann, F. J. 77
Bolles, G. A. 164
Bond, E. J. 122
Bonner, E. J. 113
Boorn, B. H. 181
Boothby, A. Z. 44
Bouck, A. T. 52
Boynton, F. D. 185
Bradley, H. E. 140
Bridgham, E. G. 271

istol, G. P. 31
own, F. H. 129
own, R. E. 161
ownell, C. A. 130
ownell, G. E. 301
ubacher, A. R. 158
llock, W. W. 249
lson, C. H. 334
rdick, E. H. 234
rke, P. F. 281
rlingame, Menzo 94
rritt, B. B. 396
rritt, O. H. 244
rroughs, A. P. 125
tts, H. W. 320

lkins, J. T. P. 47
rey, E. L. 28
rris, L. H. 198
se, H. C. 15
ssety, J. M. 378
hamberlain, Arthur 72
happell, B. B. 152
hase, A. E. 182
heney, F. J. 380
hilds, J. S. 166
lark, B. F. 406
lark, E. R. 293
Clark, Hosea 218
Clark, R. F. 313
Clarke, W. G. 177
Cobb, C. N. 4
Cochrane, W. E. 407
Coffin, J. G. 408
Cole, L. T. 373
Collister, H. F. 213
Conant, Howard 137
Congdon, F. K. 37
Cook, A. E. 319
Cook, L. J. 333
Cooley, B. F. 274
Craig, L. W. 252
Crain, J. H. 312
Crane, L. N. 294
Crissy, I. O. 10
Crofoot, J. M. 51
Cruikshank, W. G. 147
Crumb, F. W. 59
Cummings, E. L. 409
Currie, J. W. 357
Curtis, A. M. 389
Cutler, E. W. 410

Dann, H. M. 202
Darling, F. R. 284
Davidson, Charles 5
Davis, A. B. 235
Deans, W. J. 275
Denham, H. H. 332
Derrick, Calvin 231
Detmers, Arthur 393
Down, E. F. 57
Downey, A. H. 259
Du Bois, J. E. 327
Dunham, F. F. 82
Dyer, H. W. 127

Eells, B. G. 311
Eggenberger, James 120
Elden, H. E. 133
Ellis, De L. M. 411
Ellsworth, J. A. 412
Emerson, A. W. 402
Emerson, H. P. 73
Ensign, W. H. C. 238
Estee, J. A. 157
Estes, B. G. 167
Evans, C. W. 392

Fairgrieve, G. W. 111
Fairgrieve, J. R. 350
Farnsworth, B. B. 196
Fenno, F. E. 247
Fenton, George 413
Fernald, R. L. 414
Fetterly, C. A. 257
Field, G. C. 415
Fletcher, M. J. 186
Ford, H. I. 416
Foresman, R. 417
Fort, W. M. 372
Fosdick, F. S. 221
Franklin, Mrs G. H. 328
Frisbee, E. S. 9
Froehlich, Hugo 418
Fuller, E. A. 237

Galusha, F. M. 110
Gast, I. M. 289
Gay, Elias 85

Gibbs, J. M. 329
Gibson, H. J. 330
Gibson, J. H. 11
Gile, N. C. 298
Glasier, G. W. 353
Glass, J. M. 315
Gordon, W. E. 277
Gouldin, H. C. 363
Grady, Leon 91
Greene, John 25
Grubel, H. G. 103
Guinnip, G. H. 100
Gurley, R. B. 306

Haff, A. C. 362
Hamilton, C. A. 239
Harkness, J. I. 229
Harris, W. L. 117
Hart, A. L. 419
Hart, John 248
Hart, J. M. 32
Haydon, B. L. 369
Hayward, Edward 131
Helfer, P. M. 217
Hendrick, Welland 387
Herrick, C. H. 215
Herrick, W. S. 86
Herron, S. F. 174
Hewes, W. D. 112
Hill, A. C. 22
Hill, C. D. 69
Hinman, E. E. 189
Hoemer, E. C. 134
Hodgdon, F. C. 420
Holcomb, H. L. 383
Holmes, E. D. 39
Hopkins, Henry 375
Horton, A. R. 358
Hosford, G. C. 340
Hotchkiss, O. C. 155
House, A. E. 68
Howe, E. J. 316
Howe, S. B. jr 305
Hughes, R. W. 160
Hull, F. M. M. 314
Hull, P. M. 17
Hunt, L. R. 106
Hurlbut, Floyd 268
Hustleby, H. C. 116

Irvine, W. H. 192

Johnson, W. D. 105
Johnson, S. S. 360
Jones, E. N. 386
Jones, F. B. 126
Jones, H. B. 41

Keller, Christopher 210
Kellogg, Brainerd 27
Kennedy, G. W. 304
Kerr, W. D. 421
Keyser, R. S. 384
Kimm, S. C. 226
King, F. De L. 197
Kingsbury, H. C. W. 99
Kinney, W. H. 211
Knapp, A. S. 216
Knapp, E. F. 173
Knell, T. R. 303

Ladd, E. A. 62
Laidlaw, J. B. 168
Lamson, F. L. 104
Lash, C. M. 101
Lavery, A. A. 61
Lawrence, J. B. 232
Lee, Nicholas 95
Leighton, Frederick 296
Lester, F. V. 335
Lester, J. D. 175
Lewis, W. D. 422
Lisk, W. H. 58
Lockwood, S. R. 170
Lomber, E. H. 351
Loveless, H. S. G. 266
Lovell, T. B. 246
Luce, E. B. 204
Lusk, J. L. 345
Lyon, G. W. 224
Lyttle, E. W. 6

Mabey, C. G. 233
Mabie, R. A. 219
Mabon, J. P. 180
McCarthy, J. C. 322
McClellan, S. D. 227
MacDonald, R. A. 184
MacElroy, A. J. 323
McFarlane, C. T. 376

, J. T. 395
, E. F. 151
, E. N. 423
J. C. 208
, Samuel 352
. B. 276
, F. M. 124
. S. 55
Arthur 308
. R. 240
. M. A. 336
H. W. 398
, M. M. 379
, F. J. 149
, P. C. 361
C. A. 371
E. C. 300
G. R. 66
L. H. 291
, W. W. 154
, W. J. 34
ey, L. R. 214
e, E. L. 280
re, F. R. 102
elock, O. J. 206
ey, B. I. 288
rey, C. L. 163
sher, C. L. 83
osher, Ralph 223
ulford, C. W. 63
ullaney, J. F. 424
üller, A. V. 207
undt, F. W. 251
unson, C. H. 65

eff, S. J. 212
Niles, C. O. 283
Nisbeth, Rupert 70
Norris, J. C. 80
Northrop, H. F. 367
Norton, A. H. 225
Nute, A. C. 142

O'Brien, D. H. 399
Ottaway, G. H. 81

Palmer, F. B. 382
Palmer, N. W. 401
Palmer, W. T. 172
Parker, F. R. 381
Parsons, J. R. jr 1
Peck, E. J. 8
Peck, J. G. 324
Peckham, Allen 425
Peek, F. A. 267
Perkins, A. D. 426
Perry, W. H. 209
Plough, M. C. 169
Presler, O. C. 93
Preston, A. M. 54
Probes, John 427

Randolph, E. M. 254
Raphael, Brother 299
Ray P. A. 428
Rayfield, W. W. 187
Raynor, G. R. 143
Redman, E. S. 179
Reed, H. G. 90
Reed, J. W. 165
Reuther, E. A. 135
Richards, C. O. 321
Richards, C. W. 270
Rickard, H. D. 60
Rinker, A. T. 38
Rix, W. S. 374
Roberts, B. H. 46
Robinson, Ernest 96
Robinson, E. B. 193
Rockwell, J. C. 429
Roorbach, G. B. 118
Root, J. W. 295
Roulston, R. S. 264
Rowe, E. J. 349
Rowley, L. E. 430
Rulison, H. V. 354
Russell, H. J. 153
Russell, H. L. 272
Russell, I. H. 394

Sanders, E. M. 309
Sanford, C. G. 205
Sanford, E. M. 53
Saunders, E. P. 42
Schumacher, C. A. 390
Scripture, A. M. 241
Scudder, M. T. 385
Searle, R. B. 188
Seely, C. D. 377
Shannahan, W. D. 359

Shaver, C. A. 18
Shear, S. R. 191
Shields, B. X. 40
Shutts, F. T. 297
Siddell, W. G. 364
Simons, F. D. 138
Sindele, F. X. 24
Slack, E. B. 190
Smith, D. B. 318
Smith, E. E. 79
Smith, E. P. 282
Smith, F. E. 109
Smith, F. M. 200
Smith, G. H. 64
Smith, G. W. 431
Smith, H. W. B. 146
Smith, J. E. 115
Smith, M. C. 49
Smith, W. A. 285
Snell, H. H. 178
Snyder, E. J. 74
Snyder, R. H. 36
Snyder, R. P. 243
Somers, Warrington 56
Soper, E. G. 366
Southwick, H. H. 260
Spencer, R. A. 144
Spencer, R. V. 310
Stafford, C. H. 139
Stark, Clifford 432
Steele, W. S. 262
Stewardson, L. C. 26
Stowell, T. B. 391
Strong, A. M. 433
Sutley, F. K. 339
Sykes, G. D. 331

Taylor, H. L. 2
Taylor, R. A. 245
Tefft, Frances 302
Tifft, W. C. 132
Thompson, J. M. 278
Thompson, K. L. 97
Tibbitts, E. C. 348
Toaz, R. K. 273
Townsend, C. W. 337
Traphagen, M. H. 356
Tubbs, L. R. 76
Tucker, A. O. 50
Turney, L. G. 141

Vandegrift, C. W. 370
Van Dusen, Fred 261
Van Ingen, B. C. 256
Van Ness, M. J. 195
Van Wormer, W. E. 307
Van Zile, F. W. 75
Vosburgh, C. D. 128
Vossler, A. B. 355

Walker, C. F. 136
Walrath, M. H. 341
Walter, C. F. 317
Walthart, J. L. 220
Warfield, C. H. 203
Washburn, K. N. 434
Watson, S. A. 228
Weatherlow, H. P. 84
Webster, F. P. 121
Welker, W. G. 368
Westfall, F. M. 342
Wheaton, Henry 338
Wheeler, W. H. 263
Wheelock, C. F. 3
Whipple, G. M. 29
White, F. C. 108
Whitney, C. W. 71
Whittaker, B. E. 87
Wight, P. L. 98
Wilber, T. C. 435
Wilcox, A. H. 290
Wilcox, L. D. 279
Wiley, G. M. 123
Williams, C. S. 92
Williams, D. B. 145
Williams, Sherman 19
Williams, W. R. 150
Wiseman, J. W. 326
Wiswell, L. O. 16
Wixom, E. C. 48
Wood, F. H. 20
Wood, O. W. 114
Wood, W. M. 325
Woodworth, H. C. 107
Woolsey, C. H. 286

Yeau, Everitt 436
Young, I. E. 242
Yust, W. F. 13

INDEX

Academic Syllabus committee, report on high school English, 361–403; reports may be printed by Regents, 403.
Action, summary of, 314.
Anniversary exercises, committee on, 314.
Appointments, 314.
Appropriation for libraries, 317.
Arms, S. D., vote of thanks to, 403–4.
Armstrong, T. H., address, 319–22; transfer of duties to new president, 459.
Atlanta Ga., meeting of superintendents at, 458.
Attendants, register, 461–74.

Bacon, H. D., on teachers tenure of office, 418.
Baskerville, G. H., on study of English, 449–51.
Bennett, Charles E., on methods of admission to college, 338–44.
Boynton, F. D., on examinations for admission to college, 348–49; on printing reports of Academic Syllabus committee, 403.
Briggs, Dean, on admission to college by certificate, 334, 346.
Bristol, George P., on meeting of State Teachers Association, 459.
Brubacher, A. R., on certificate system of admission to college, 349–51.

Certificate system of admission to college, 323–35, 338–40, 345, 347–48, 349–51, 351–52, 352–53.
College, admission to by examination, paper by C. D. Seely, with discussion, 322–55; certificate system of admission to, 323–35, 338–40, 345, 347–48, 349–51, 351–52, 352–53.
College Entrance Examination Board, work of, 335–38, 340, 348; purpose of establishing, 340.
Compayré, Gabriel, on American schools, 356.
Conant, Howard, resolution on tenure of office for teachers, 317–18, 414; Professional Status of School men, 404–11, 416, 417, 418; response to retiring president, 460.

Darling, F. R., on teachers tenure of office, 417.
Detmers, Arthur, on teachers tenure of office, 418.

Education, some unseen forces that are shaping our national education, by Henry Hopkins, 419–37.
Educational exhibit at the St Louis Exposition, by D. M. Ellis, 355–61.
Ellis, Delancey M., Educational Exhibit at the St Louis Exposition, 355–61.
Emerson, Henry P., on meeting of superintendents at Atlanta Ga., 458–59.
English, high school, report of syllabus committee on, 361–403; statements by Prin. Lovell, 451–53; effect of present method of teaching on the student's appreciation of good literature, discussion, 437–55.
Evans, C. W., moves vote of thanks to S. D. Arms, 403–4.
Examinations, admission to college by, paper by C. D. Seely, with discussion, 322–55; grading of papers, 350–51.
Executive committee, appointments for *1904*, 317; report, 316.

High School Department

PUBLICATIONS

Gaps in the series indicate that the numbers omitted are replaced by later tions or are for other reasons out of print.

xamination Department reports 1894–97. O. *75c a vol.*

Til 1892 these reports formed part of the general University reports, known the Regents reports. They cover courses of study in secondary schools, amination of professional students, licensing examinations for physicians, ntists, veterinary surgeons and certified public accountants.

Continued in 1898 as reports of College and High School Departments.

Examination Department bulletins 1895–98. O. *Continued as College and High School Department bulletins.*

4 (Examinations 1) Regents Examinations. 82p. Nov. 1890. *10c.*

Historical sketch, laws, ordinances and rules pertaining to all examinations nducted by the Regents; details as to all University credentials; subjects, mes and places of examinations 1891–95; notes on the reorganization of 1890.

823 (Examinations 5) Report of Examination Department 1893. 82p. Feb. 1894. *10c.*

X6 Report of Examination Department 1894. 126p. Mar. 1895. *15c.*

X7 Medical Syllabus. 128p. Mar. 1895. *25c.*

Outline of ground covered by state licensing examinations, prepared under rection of state boards of medical examiners for guidance of candidates.

Syllabus of Form Study and Drawing. 30p. 32pl. *25c.*

Reprint of p.410–34d and plates from X8, *Academic Syllabus 1895*, replaced y X24.

X9 Report of Examination Department 1895. 108p. Feb. 1896. *15c.*

X10 Examination Papers 1896. 502p. Oct. 1896. *50c; small size uniform with previous volumes 25c; boards, 50c.*

See also Question papers.

X11 Davis, W: M. (Harvard) State Map of New York as an Aid to the Study of Geography. 28p. Nov. 1896. *5c.*

Based on the topographic map in preparation by the United States Geo- gical Survey.

X12 Report of Examination Department 1896. 114p. Jan. 1897. *15c.*

X13 College-entrance English. 148p. June 1897. *15c.*

Present English entrance requirements of representative colleges and universities. Also discussions on aims and methods in teaching secondary school English.

X14 Examination Papers 1897. 578p. Aug. 1897. *Price, see* X10.

X15 Report of Examination Department 1897. 120p. Nov. 1897. *15c.*

X16 Examination Papers 1898. 512p. Sep. 1898. *Price, see* X10.

The second edition contains only the academic papers, the professional papers being printed separately as College bulletin 3.

High School Department reports 1898–date. O. *75c a vol.*

High School Department bulletins 1898–date. *To advance subscribers 50c a year.*

X17 (High School 1) Director's Report 1898. 122p. Mar. 1899. *15c.*

X19 (High School 3) Associated Academic Principals. Proceedings of the 14th Annual Conference, Dec. 1898. 136p. Dec. 1899. *25c.*

X20 (High School 4) Academic Examination Papers 1899. 306p. Oct. 1899. *25c. Small size 12.5 x 20 cm, 25c; boards, 50c.*

X21 (High School 5) Director's Report 1899. 70p. Feb. 1900. *10c*

X22 (High School 6) Associated Academic Principals. Proceeding of the 15th Annual Conference, Dec. 1899. 188p. Mar. 1900. *20*

X23 (High School 7) State Science Teachers Association. Proceedings of the Fourth Annual Conference, Dec. 1899. 302p. May 1900. *35c.*

X24 (High School 8) Academic Syllabus. 226p. Ap. 1900. *25c ; cloth, 50c.*

The University declines to recommend any special textbooks, but for the guidance of teachers and students it specifies the ground covered by the preliminary and academic subjects. This syllabus is the best available outline o what should be accomplished in these subjects.

X25 (High School 9) Manual Training Syllabus. 60p. May 1900. *10c.*

X26 (High School 10) Academic Examination Papers 1900. 306p. Aug. 1900. *Price, see* X20.

X27 (High School 11) Director's Report 1900. 38p. Feb. 1901. *5c*

X28 (High School 12) Associated Academic Principals. Proceedings of the 16th Annual Conference, Dec. 1900. 164p. Ap. 1901. *25c.*

X29 (High School 13) State Science Teachers Association. Proceedings of the Fifth Annual Conference, Dec. 1900. 250p. May 1901. *35c.*

X30 (High School 14) Academic Examination Papers 1901. 322p. Aug. 1901. *25c ; boards, 50c.*

X31 (High School 15) Director's Report 1901. 34p. Jan. 1902. *10c*

X32 (High School 16) Associated Academic Principals. Proceedings of the 17th Annual Conference, Dec. 1901. 196p. Mar. 1902. *25c.*

X33 (High School 17) State Science Teachers Association. Proceedings of the Sixth Annual Conference, Dec. 1901. 312p. Oct. 1902. *40c.*

X34 (High School 18) Academic Examination Papers 1902. 316p. July 1902. *25c ; boards, 50c.*

X35 (High School 19) Associated Academic Principals. Proceedings of the 18th Annual Conference, Dec. 1902. 136p. June 1903. *20c.*

X36 (High School 20) Director's Report 1902. 38p. July 1903. *10c.*

X37 (High School 21) State Science Teachers Association. Proceedings of the Seventh Annual Conference, Dec. 1902. 128p. Nov. 1903. *20c.*

X38 (High School 22) Academic Examination Papers 1903. 308p. July 1903. *25c.*

X39 (High School 23) Director's Report 1903. 52p. 1904. *15c*

X40 (High School 24) Associated Academic Principals. Proceedings of the 19th Annual Conference, Dec. 1903. 172p. 1904. *25c.*

Question papers. For the academic year 1892 (v. 1); 1893 (v. 2); 1894 (v. 3); 1895 (v. 4). D. *25c ; boards, 50c.*

For 1896–1903 *see* X10, X14, X16, X20, X26, X30, X34, X38. Till 1898 each volume contained all the Regents question papers of that year in any of the academic, professional law, medical, dental, veterinary, library and extension examinations. After the first edition of the 1898 examination papers the *academic and professional* papers were separated.

Published monthly by the
University of the State of New York

igh School Department

ING ACADEMIES AND ALL INTERESTS OF SECONDARY EDUCATION

Bulletin 25

YORK STATE SCIENCE TEACHERS ASSOCIATION

PROCEEDINGS OF THE
EIGHTH ANNUAL CONFERENCE

Held at Syracuse High School, December 28-30, 1903

PAGE
mary of sessions 483
mary of action........ 486
resses, papers and discussions 489
uration of the Teacher for ature Study Teaching: Mrs nna Botsford Comstock... 491
menclature of the New York eologic Formations: John M. larke 495
tion meetings
tion A. Physics and chemistry
ndamental Things in Physical Science: Howard Lyon 509
ion B. Biology
rrelation of Biologic Science with Drawing and English in the High School. C. Stuart Gager 517
rrelation of Biology with Sanitary Science: Prof. James H. Stoller........ 531
on C. Earth science
me Geography: Com'r H. rving Pratt........ 544
boratory Work in Physical Geography: Albert Perry righam 550
Place of Commercial Geography: Jacques W. Redway 551
n A. Physics and chemistry
sics. Laboratory and Machine Shop Exhibit: Prof. C. Kenyon 555
Apparatus for Illustrating lor Phenomena: Prof. nest R. von Nardroff.. 557
onstration of Radium: f. William C. Peckham 561
B. Biology
ntages of a Year's Course Biology: Prof. William ton Merrell........ 564

PAGE
Section B. Biology (*cont'd*)
Biology as a Culture Study: Prof. W. M. Smallwood... 575
Exhibition of a Decerebrized Frog: Burt G. Wilder ... 586
Section C. Earth Science
Textbooks in Geography: Margaret Keiver Smith........ 587
General session
Chemistry in High School: E. G. Merritt 602
Desirable Changes in the Regents Courses in Chemistry and Physics: G. M. Turner........ 607
Alcohol and Narcotics: Final Report of the Committee, presented by Burt G. Wilder 613
Discussion: Mrs Cora Dodson Graham........ 650
Zoology in the High School: George H. Hudson........ 658
Diaphragm Apparatus: Burt G. Wilder........ 666
Report of Committee on a Syllabus for Second Year Physics: E. R. von Nardroff, chairman 666
Report of Committee on Laboratory Course in Physiology: C. N. Cobb, chairman........ 685
A Method of Measuring the Vibration in Stationary Sound Waves: Bergen Davis........ 686
The Electrodeless Discharge in High Vacua, and the Mean Free Path of an Electron: Bergen Davis........ 687
Report of Committee on St Louis Educational Exhibit: Hubert J. Schmitz, chairman........ 689
Memorial to Robert Henry Thurston: Prof. Simon Henry Gage 690
Members 1903........ 691
Index........ 697

ALBANY
UNIVERSITY OF THE STATE OF NEW YORK
1904

Price 30 cents

STATE OF NEW YORK

EDUCATION DEPARTMENT

Regents of the University
With years when terms expire

1913	WHITELAW REID M.A. LL.D. *Chancellor*	New York
1906	ST CLAIR MCKELWAY M.A. L.H.D. LL.D. D.C.L. *Vice Chancellor*	Brooklyn
1908	DANIEL BEACH Ph.D. LL.D.	Watkins
1914	PLINY T. SEXTON LL.D.	Palmyra
1912	T. GUILFORD SMITH M.A. C.E. LL.D.	Buffalo
1905	ALBERT VANDER VEER M.D. M.A. Ph.D. LL.D.	Albany
1907	WILLIAM NOTTINGHAM M.A. Ph.D. LL.D.	Syracuse
1910	CHARLES A. GARDINER Ph.D. L.H.D. LL.D. D.C.L.	New York
1915	CHARLES S. FRANCIS B.S.	Troy
1911	EDWARD LAUTERBACH M.A.	New York
1909	EUGENE A. PHILBIN LL.B. LL.D.	New York

Commissioner of Education
ANDREW S. DRAPER LL.D.

Assistant Commissioners
HOWARD J. ROGERS M.A. LL.D. *First Assistant Commissioner*
EDWARD J. GOODWIN Lit.D. *Second Assistant Commissioner*
AUGUSTUS S. DOWNING M.A. *Third Assistant Commissioner*

Secretary to the Commissioner
HARLAN H. HORNER B.A.

Director of Libraries and Home Education
MELVIL DEWEY LL.D.

Director of Science and State Museum
JOHN M. CLARKE LL.D.

Chiefs of Divisions
Accounts, WILLIAM MASON
Attendance, JAMES D. SULLIVAN
Examinations, CHARLES F. WHEELOCK B.S.
Inspections, FRANK H. WOOD M.A.
Law, THOMAS E. FINEGAN M. A.
Records, CHARLES E. FITCH L.H.D.
Statistics, HIRAM C. CASE

University of the State of New York

High School Department

INCLUDING ACADEMIES AND ALL INTERESTS OF SECONDARY EDUCATION

Bulletin 25

NEW YORK STATE SCIENCE TEACHERS ASSOCIATION

PROCEEDINGS OF THE
EIGHTH ANNUAL CONFERENCE

Held at Syracuse High School, Syracuse, December 28-30, 1903

SUMMARY OF SESSIONS

Monday, December 28, 2.30 p. m.

Registration

Opening session; called to order by Prof. E. N. Pattee, Syracuse University

Introduction of President-elect Irving P. Bishop, Buffalo Normal School

Preparation of the Teacher for Nature Study Teaching

Anna Botsford Comstock, Cornell University

Nomenclature of the New York Geological Formations

John M. Clarke, State paleontologist, Albany

Discussion

Albert Perry Brigham, Colgate University

P. F. Piper, Buffalo Central High School

SECTION MEETINGS

Monday, 4 p. m.

Section A—Physics and Chemistry. Edward S. Babcock, Alfred University, *chairman*

Fundamental Things in Physical Science

Howard Lyon, Oneonta Normal School

Section B—Biology. Prof. James H. Stoller, Union College, Schenectady, *chairman*

Correlation of Biologic Science with Drawing and English in the High School

Dr C. Stuart Gager, Albany Normal College

Discussion

Harriette Arms Curtiss, East High School, Rochester

Prof. J. E. Kirkwood, Syracuse University

Correlation of Biology with Sanitary Science

Prof. James H. Stoller, Union College, Schenectady

Discussion

Frederick W. Smith M. D., Health officer, Syracuse

George H. Hudson, Plattsburg Normal School

Section C—Earth Science. Amos W. Farnham, Oswego Normal School, *chairman*

Home Geography. Its Place and Purpose in Geography Teaching

Com'r H. Irving Pratt, Orwell

Laboratory Work in Physical Geography

Albert Perry Brigham, Colgate University

The Place of Commercial Geography

Jacques W. Redway, Mt Vernon

Tuesday, December 29, 9 a. m.

Section A—Physics and Chemistry. Edward S. Babcock, Alfred University, *chairman*

Physics, Laboratory and Machine Shop Exhibit

Prof. O. C. Kenyon, Syracuse High School

New Apparatus for Illustrating Color Phenomena

Prof. Ernest R. von Nardroff, Erasmus Hall High School, Brooklyn

Demonstration of Radium

Prof. **William C. Peckham**, Adelphi College, Brooklyn

Section B—Biology. Prof. James H. Stoller, Union College, Schenectady, *chairman*

Advantages of a Year's Course in Biology (Zoology, Physiology, Botany)

William Dayton Merrell, University of Rochester

Discussion

William L. Fisher, Delhi

Prof. **J. E. Kirkwood**, Syracuse University

Biology as a Culture Study

Prof. **W. M. Smallwood**, Syracuse University

Discussion

Gertrude S. Burlingham, Binghamton High School

Exhibition of a Decerebrized Frog

Burt G. Wilder, Cornell University

Section C—Earth Science. Prof. **Amos W. Farnham**, Oswego Normal School, *chairman*

Textbooks in Geography

Margaret Keiver Smith, New Paltz Normal School

GENERAL SESSIONS

Tuesday, 11 a. m.

Chemistry in the High School

E. G. **Merritt**, Lafayette High School, Buffalo

Desirable Changes in Regents Courses in Chemistry and Physics

G. M. **Turner**, Masten Park High School, Buffalo

Tuesday, 2 p. m.

Final Report of Committee on the Effects of Alcohol and Narcotics presented by

Burt G. Wilder, Cornell University

Discussion

Mrs **Cora D. Graham**, President Woman's Christian Temperance Union of Onondaga County

Tuesday, 3 p. m.

Zoology in the High School

George H. Hudson, Plattsburg Normal School

Discussion

Prof. W. M. Smallwood

Diaphragm Apparatus presented by

Burt G. Wilder, Cornell University

Wednesday, December 30, 9.30 a. m.

Report of Committee Appointed to Prepare a Syllabus for a Second Year of Physics in the High School presented by

Prof. Ernest R. von Nardroff, Erasmus Hall High School, Brooklyn, *chairman*

Discussion

Prof. O. C. Kenyon, Syracuse High School

Prof. William Hallock, Columbia University, New York

Suggested List of Laboratory Exercises in Physiology to be Performed by Each Student

Inspector Charles N. Cobb, Regents Office, Albany, *chairman*

Wednesday, 11 a. m.

A Method of Measuring the Amplitude of Vibration in Stationary Sound Waves

Bergen Davis, Columbia University, New York

The Electrodeless Discharge in High Vacua and the Mean Free Path of an Electron

Bergen Davis, Columbia University, New York

Report of Committee on St Louis Educational Exhibit

Hubert J. Schmitz, Geneseo Normal School, *chairman*

Adjourned

SUMMARY OF ACTION

Alcohol and narcotics. The committee on alcohol and narcotics made a report of progress and, owing to the illness of two members of the committee, asked an extension of time to prepare a final report.

Moved and carried, That the committee on stimulants and narcotics be instructed to present their final report to the council and that the council be authorized to accept or reject the report.

Moved and carried, That the several state educational organizations, the W. C. T. U., and the New York State Central Committee be requested to send delegates to confer with the committee on stimulants and narcotics of the Science Teachers Association to discuss means whereby the teaching in our schools, of physiology, hygiene, and in relation to them, the nature and effect of alcohol and other narcotics may be rendered more efficient.

The committee is: Irving P. Bishop, Buffalo Normal School; Burt G. Wilder, Cornell University, Ithaca; Gaylord P. Clark, Syracuse University; Eli H. Long, University of Buffalo; James E. Peabody, Morris High School, New York.

Physics. E. R. von Nardroff, Erasmus Hall High School, Brooklyn. chairman of the committee to prepare a syllabus for 2d year physics, presented the report of the committee.

Moved and carried, That the report be accepted and adopted for one year, also that the committee be continued for the purpose of further perfecting the syllabus. The committee is: Prof. E. R. von Nardroff, Erasmus Hall High School, Brooklyn; Prof. R. J. Kittredge, Schenectady High School; Prof. Frank Rollins, New York; Prof. O. C. Kenyon, Syracuse High School; Inspector Charles N. Cobb, Regents Office.

Physiology. C. N. Cobb, Regents Office, Albany, presented the report of the committee to prepare a laboratory course in physiology suitable for the high school.

Moved and carried, That the report be accepted and adopted for one year and that the committee be continued for the purpose of perfecting the syllabus. The committee is: Inspector Charles N. Cobb, Regents Office; Miss Katharine S. Wetmore, Rochester High School; Prof. A. D. Morrill, Hamilton College; and Prof. M. S. Thomas, Central High School, Buffalo.

1904 meeting. The council's report contained a recommendation that Syracuse be the next place of meeting. *Carried*

Report of committee on resolutions presented by Prof. J. H. Stoller of Union College.

Approved

Treasurer's report

For year ending Dec. 30, 1903

Receipts

Sep.	5	Check from Secretary Warner....	$22 48	
Dec.	30	Dues	77 ..	
				$99 48

Expenditures

Oct.	13-29	Shaw, printing..................	$10 50	
Nov.	19	Stenography (Taylor)	1 ..	
		Express on programs............	45	
Dec.	24	Clerk hire	10 ..	
"	26	Letter file, etc..................	2 15	
"	30	I. P. Bishop.....................	23 62	
"	30	I. P. Bishop.....................	25 75	
"	30	Postage	10 35	
"	30	Incidentals	2 03	
"	30	B. Davis (express)...............	4 ..	
"	30	Prof. E. R. von Nardroff..........	2 ..	
"	30	Dr Wilder	5 40	
				$97 25
		Cash on hand................................		2 23
				$99 48

Committee reports

Auditing committee. We have examined the accounts of the treasurer and find them correct.

G. M. Turner
E. R. Whitney

Approved

St Louis Exposition. Prof. H. J. Schmitz, of the Geneseo Normal School, appointed by the council to represent the State Science Teachers Association on the committee to select exhibits for the St Louis Exposition, presented his final report.

Approved

Secretary and treasurer. *Moved and carried,* That the appointment, by the president, of Mr P. F. Piper of Buffalo for the unexpired term of Secretary and Treasurer A. R. Warner, resigned, be approved.

Section E. *Moved* by Prof. E. N. Pattee and carried, That a section of mathematics be organized to be known as section E.

Nominations. The nominating committee made the following nominations:

President, E. R. von Nardroff, Erasmus Hall High School, Brooklyn

Vice president, O. C. Kenyon, Syracuse High School

Secretary and treasurer, P. F. Piper, Buffalo Central High School

Members of the council, 1907, A. W. Farnham, Oswego Normal; O. D. Clark, George William Curtis High School, Staten Island; J. E. Kirkwood, Syracuse University

Elected

ADDRESSES, PAPERS AND DISCUSSIONS

Monday afternoon, December 28

Owing to the absence of President Hallock, Prof. E. N. Pattee of Syracuse University called the meeting to order and introduced President-elect Irving P. Bishop of Buffalo Normal School, who addressed the association.

Ladies and Gentlemen: Permit me to thank you for the confidence implied in your choice of president. I highly appreciate the honor you have conferred on me, and assure you of my best efforts to further the interests of the association.

From its inception this body has had for its chief purpose the improvement of science teaching and closer cooperation between the Regents, the universities and the secondary schools. Efforts in the first direction have secured in the high schools widespread adoption of laboratory methods, increased interest, and the purchase of apparatus suited to individual work by the pupil. In the other direction cooperation has secured concerted action which is, in the highest degree, advantageous to all concerned. The high school does the science work for which it has suitable facilities; the college accepts the work as a part of the entrance tests, and is thus relieved of preparation along elementary lines; and the student is enabled either to shorten the time and expense of his college course, or to realize more from his university life. We may therefore congratulate ourselves upon the results already achieved. Success in the past, however, does not permit of relinquished effort. The changed conditions brought about by experience and discovery constantly develop new problems which it is our duty to discuss and, if possible, solve. A few years ago a committee of this body prepared a list of experiments as the basis of laboratory work in physics for high schools. This has been of great value in fixing a standard for both kind and quantity of work. Today, however, we have outgrown that standard and a new one, suited to present conditions, is imperatively needed. The question of a second year in physics, proposed at our last meeting, is well worthy of further consideration. The report of the committee having that topic in charge will be presented on Wednesday.

Perhaps the least satisfactory of all science work now done in the schools of this State is that in physiology. Two committees will present matter bearing upon this topic. I trust that the deliberations of this meeting may advance us at least a step nearer the goal of greater efficiency in teaching, and greater economy of time.

At the request of several members, new and interesting phases of scientific discovery will be demonstrated by science teachers eminent in their own specialties. Through the kindness of Prof. O. C. Kenyon, a rare opportunity will be afforded of seeing practical work in the physical laboratory and in the construction of apparatus by pupils of the Syracuse High School. I am sure that teachers will appreciate these practical demonstrations and will show their appreciation by attending them.

PREPARATION OF THE TEACHER FOR NATURE STUDY TEACHING

BY MRS ANNA BOTSFORD COMSTOCK, CORNELL UNIVERSITY

[Read by William C. Thro, Cornell University]

Since the beginning of the nature study movement the one great obstacle to the introduction of nature study in the schools has been that the teachers were not prepared to teach it, and were afraid to undertake it. It has been demonstrated over and over that nature study in the schoolroom saves time and energy and temper for the teacher and pupils. Everywhere we have seen that the children are more than interested in anything that has to do with the myriad life out of doors, and that they draw and write about nature study subjects so easily and naturally that they are quite unconscious that they are engaged in either drawing or language work. Now there is no stumbling-block left in the nature study path except the unprepared teacher. She is overworked anyway, and she is afraid to try any new thing that involves extra work and possible failure. She takes arithmetic or grammar or geography as a criterion; she knows that unless she has mastered these subjects it is not safe to try to teach them. Therefore, she concludes that unless she masters all physical and biologic science she dare not begin nature study. The fact that no one nowadays pretends to have achieved such mastery does not seem to influence her in the least.

We have visited many schools and have seen much nature study carried on in the grades, and from our experience it seems to us that the teacher does not need to know so much about nature to be sympathetic toward her children in their study of nature. The following instance occurred in our own town: for some years some of my child friends had talked to me most enthusiastically about their nature work with Miss Brown, and these little people surely learned a great many interesting things by getting the answers to their questions direct from nature. I concluded that Miss Brown must be specially well trained in this line of work.

Later I came to know her well, and a person more guiltless of nature knowledge than she I have seldom met. She hardly knew a daisy from a sunflower, or a moth from a butterfly, and could not even tell the English sparrow when she saw it; in fact, she knew about as little as possible, and not nearly so much as did her pupils who had talked to me about her. But she had a sweet outlook on the world and loved her children, and knew how to encourage them to advance along the lines of their own interest. She had the right kind of spirit and that seems to be of more importance than knowledge in teaching very young children. However, there is no question but that she would have been a far better teacher had she had more knowledge.

Another thing we have come to believe is if a teacher be interested in just one phase of nature she is likely to be a good nature teacher. Nature extends to us a beckoning hand from every bush and flower, and stick and stone, and it really makes very little difference which hand we grasp in greeting. This fact is the most hopeful one in the whole nature study outlook. A teacher may become interested in just one line of out of door study, and this interest is the key which unlocks nature's storehouse. Therefore, when a teacher is thinking of fitting herself for work in nature study we always encourage her to devote her few spare moments and small surplus energy to knowing some one subject more or less thoroughly. We encourage her to study the flowers, or the trees, or the ferns, or the birds, or the butterflies in a masterful way. It gives a sustaining interest to all of her work; it is the thread on which she strings her beads of nature knowledge.

Let us suppose that our teacher begins with a slight interest in a subject; the question is how can she best gain more knowledge, what kind of facts should she seek to know? First of all she should understand the principles which underlie her subject. The knowing of species by name is the merest introduction to real work. To illustrate: suppose our teacher's interest is in flowers or trees, first of all she should know a few fundamental things about plant physiology. She would know that (1) the roots of a plant serve to get it nourishment from the soil and that they also serve to hold it in place; (2) the stem or trunk or branches are for the purpose of holding the leaves out to the light, and holding the flowers out where they may be pollinated, and they serve as channels for the sap also; (3) that the work of the leaf is threefold, that it manufactures the food for the plant, digests it and helps in the respiration; (4) that the object of the flower is to mature the seed, for the success of the species depends upon the maturing and scattering of the seed; (5) that the soil, and water, and light and air are absolutely necessary to plant growth; (6) the nature of the seed and how it behaves while germinating.

Now all of these facts just enumerated she could commit to memory in five minutes, but such facts are not really learned by memorizing. The teacher should know all of these facts by experiment and observation not only in the study of one species but of several. There is a most valuable little book written by Professor Atkinson that tells of many simple experiments which prove all these things in plant physiology. She should carefully conduct these experiments and see for herself what is true. Above all she should think of each plant as a living being and consider its needs as she would the needs of a pet animal or a child. A fact in nature simply learned by rote means nothing. The facts about life have to be lived with in order to become significant. Our teacher accepts without question the fact that sap does ascend the stems of plants, but let her place the cut end of a stem in red ink and later study it in cross section and see the red track of the fluid; if she has done this she will know that sap ascends. So it is with all the simple facts of plant existence. If she can only be induced to investigate these things and see for herself that they are true the battle is won.

Supposing our teacher wishes to study birds, how shall she go about it? First of all let her emblazon on her banner this motto, "A bird in the bush is worth two bird books in the hand." Let her begin by observing some one bird, the more common the better. In fact, I think she might teach almost all that one needs to know about birds by studying the chicken and robin and contrasting their form and habits. Again she must come, by thinking and observing, into the comprehension of the principles which underlie bird life. She should first of all consider her bird in relation to its life and environment. What is its food; how is its form adapted to get this food? She should begin by thinking about the life of the bird; it flies, or walks, or hops or swims, why does it have these methods of locomotion? Because it must search for its food. Why do birds migrate? It is not because they could not endure the cold, but because the frost kills the plants, and the insects in turn disappear and the bird has no food here in the snow-covered north in winter; therefore it must go many miles south where it can find food; to do this it must have a rapid method of locomotion and therefore, it has wings. Let her study the form of each species of bird that she knows and ask the reason for its peculiar development. The beak of the chicken is made to go with its feet, that is, feet that scratch and beak that picks up food in the ground. The woodpeckers feet and beaks are also correlated, the feet arranged so that the two toes extend forward and two toes backward to hold the bird firmly on the bark while he uses his long, sharp beak as a chisel, to make the passage way through wood to the hidden insect. The feet and the beak of the duck are also correlated, the feet webbed for water life and the broad bill fitted for snatching the food from the pond bottom. When she notes that the young chicken is covered with down let her ask why the young robin is not likewise clad, and so on and on let her always question why as to the bird's form, and answer by the bird's habits. There are two books that help pupils in this line of thinking, the *Bird Book* by Mrs Eckstorm and the *Story of the Birds* by Baskett. If she once gets into this way of thinking about birds she will soon notice the different species and notice them not because they are different species, but because their habits are different and she is interested.

And this should be the method of training for the nature study teacher in every biologic science. She should be made to comprehend the great simple facts of life and from this basis study its variations. I think I hear some of you say, " This is all very well, but how is a teacher to get this kind of training?" There are several ways in which she can get her start; she may attend normal schools or colleges or some of the summer schools and select one study and devote her time to it instead of taking a dozen studies and giving no proper time to any. She could get some help of this sort from the Cornell home nature study course, for this work is carried on on this basis. She could take one or two wise books like the ones mentioned to suggest lines of thought and then, think and observe for herself. Wherever she gets her start, if she ever does any good work it must be from her own thinking and observation. Only by thinking can she master the real meaning of her observations. One of the very hardest things to teach a beginner in nature study is the value of a perfect and simple observation. If the teacher is the right kind she will at once see the relation between her own observations and their importance in the schoolroom. She will see how she can use each new fact to give the child a greater interest in his work, and she will see at once how to use it in making the regular work of the school stronger.

NOMENCLATURE OF THE NEW YORK GEOLOGIC FORMATIONS

BY JOHN M. CLARKE, STATE PALEONTOLOGIST

I have been asked by your president to speak briefly on the matter of the current nomenclature of our geologic formations, to indicate its underlying principles and explain the apparent tendency to a multiplication of its terms. In doing this I feel it should be a part of my effort to assuage the apprehensions of such of our teachers of geology as have felt embarrassment at what may seem to them a needless, but what is actually an unavoidable augmentation of terms.

Doubtless this request has been made of me because I am looked upon as the chief offender. Certainly we have been guilty of revising this nomenclature and of promulgating trouble thereby for all teachers of the science, and I am particularly glad to have this opportunity to come before you and give my answer to such questions as those which I fancy are in your minds: Was not the old and time-honored nomenclature good enough? We were used to it, had been taught it ourselves and it had stood the test of years; it was, compared with what you have proposed, a simple nomenclature, easily assimilated, readily understood and applied, and indeed it seems to have served the purposes of even professional geologists. What need was there of the suggested changes? Were they called for by geologists? They certainly were not by the teachers of geology.

In inviting you over to our point of view I propose to give a very brief account first of the historical development of this nomenclature. It is not without interest, and even has its tragic side.

Let me premise all I have to say with this statement. The "New York series of geologic formations" is an historic monument, erected by the labors of devoted workers, and fortified by the unequaled investigations continued through more than a half century of that most zealous and distinguished paleontologist, James Hall, a figure which towers in the history of American science. It is and has been for decades a standard of reference for all students of the older rocks throughout the world and while other classifications proposed for these rocks, contemporaneously or subsequently, have fallen to the ground, it has withstood all the attacks of time.

When the Geological Survey of New York was closed in 1843 by the rendering of the final reports (and I may add that there has been no geologic survey of the State, organized with this title, since that date) there was a general concurrence of opinion among the geologists as to the mode of arrangement and grouping of the formations, disturbed only by the individual expression for or against propositions effective in one district but less pertinent in another. It will be recalled that for this survey the State was divided into four districts and to each a geologist with assistants was assigned: Lieutenant Mather in the first, or southern, Dr Emmons in the second, or northern, Lardner Vanuxem in the third, or central and James Hall in the fourth, or western. During the first year of the survey the division between the third and fourth districts ran east and west through western and central New York, the third district being at the north and the fourth at the south of this line. The first assignment gave the original third district to Conrad and the fourth to Vanuxem. But the first year's work showed the impropriety of this division as it gave to neither district a complete representation of the succession in this part of the State. In the arrangement of districts as they were finally reported on, the third and fourth were separated by a north and south line passing through Cayuga lake. At the end of the first field season of the survey Mr Conrad withdrew to become the paleontologist of the organization and Mr Hall, who for that time had been assistant to Dr Emmons in the second district, was appointed district geologist in charge of the new fourth.

Geology in New York had not been without its active devotees before this period. It was to the personal and scientific influence of Amos Eaton of the Rensselaer School at Troy more than to any other one man that the organization of the geologic survey was due. Eaton was a pioneer in geologic science in this country. Under the tutelage of Stephen Van Rensselaer he had made a geologic survey of the country adjoining the Erie canal, he had published textbooks on this as well as many another science, and he had applied his own terms to rock formations whose courses he had defined. When therefore the four geologists, one a pupil and one an associate of Eaton, came to determine the nomenclature of the rock formations, they found outstanding a number of Eaton's terms, such as Corniferous limestone, Birdseye limestone, Calciferous sandrock, which they forthwith adopted into the proposed scheme, after having more clearly defined their boundaries. In each annual report the geologist made use of local terms intended to serve a provisional purpose and immediately applicable only to their own districts.

In the valley of the Schoharie creek the Gebhards had, between 1820 and 1835, worked out the succession of strata in that remarkable section, collected their fossils and proposed their own stratigraphic terms, and some of these, Pentamerus limestone, Tentaculite limestone, remained.

The concurrent sentiment of the geologists then as to a nomenclature included terms variously derived. Thus there were quarrymen's names, like Birdseye limestone, terms which had reference to the lithologic character of the strata such as Corniferous limestone, Calciferous sandrock, others that denoted organic characters, like Pentamerus limestone, Delthyris limestone, Cauda galli grit and many terms taking their origin wholly from the localities of typical exposure, like Potsdam sandstone, Trenton limestone, Rochester shale, Marcellus shale, etc. Fortunately for their perpetuity these last named terms were in great majority.

These original terms were the designations of the geologic units. It is important to keep this fact before the mind that the classification of the New York system was primarily and essentially a subdivision into unit terms. It was not the purpose of the geologists to group these lesser terms except in the broadest sense. Some of them did a little of it. Hall for example employed the terms Hamilton group and Portage group but he did not duplicate the unit terms in so doing. On a major grouping of the unit terms they did however agree and promulgated with essential unanimity the great divisions of the series into four parts, to wit: Champlain, at the bottom, Ontario, Helderberg and Erie.

Here were four groups of stratigraphic integers well defined, firmly grounded in fact and which might have become as fixed in our general usage as the terms Trenton limestone and Utica shale, had the successors of the original survey stood loyally by them. There was intruded on New York and American geology at this time the influence of English geology. Sir Roderick Murchison, disciple of William Smith, director of the Geological Survey of Great Britain, president of the Royal Society, had introduced the terms Silurian and, with Sedgwick, Devonian. Sedgwick at Cambridge, at first collaborator with Murchison, then his active opponent, had also introduced the term Cambrian. It is not necessary here to enter on the differences of opinion that have prevailed among the followers of these two eminent men as to the subdivision of the Paleozoic, but in America and specially in New York there was no place for either the contention or the classification. Nevertheless Murchison's great influence on the science of his time prevailed here as it has elsewhere. Who among the older teachers of geology here has ever heard of the Champlain group as applied to the Lower Silurian, or Ontario group applied to the Upper Silurian? You have used the term Champlain for postglacial deposits and time, and may have heard, I hope not have used, the term Ordovician for Lower Silurian. The four geologists actually builded better than they knew, for their fourfold major grouping was better adapted to the conditions in New York than the superinduced English nomenclature could be.

We have not tried to abolish or discard the classical English terms; that would be unwise and probably futile for, for broader divisions, we must speak in terms of worldwide meaning. But guided by a feeling of loyalty to our predecessors, by a conviction of the preeminent right of New York to these terms and of the unimpeachable appropriateness of them we have renewed our suggestions for at least alternative use, so far as present conditions permit. Thus we should say alternatively, Silurian or Ontarian, or to conform with recommendations of the International Congress of Geologists, Siluric or Ontaric. We should not say, however, Lower Siluric or Champlainic but always Champlainic, for the original Silurian was only what is now known as Upper Silurian. Two great systems have been combined under one name and designated as Upper and Lower. This is a condition which it has been attempted by English geologists to palliate by the introduction of the word Ordovician for the lower division but there is no place for this term, it is not recognized by the late director of the British Geological Survey, Geikie, and certainly should not be in America while Champlain is the older and better word. We are therefore employing the term Champlain in its original use whenever circumstances permit, that is, in our more technical papers where it will meet least resistance, confident that it will gradually find its way back into general acceptance. Of the other terms of the major series it may not be possible to save all for the advance of the science and the requirements of detailed correlation have indicated that in some cases these divisions embraced heterogeneous elements, as the Erie which included both Middle and Upper Devonian or two faunas having little in common, and the Helderberg which included both Lower Devonian and an aberrant part of the Upper Silurian. In these cases we have endeavored to save these terms to the New York nomenclature by restricting them to a sense in which they can be used.

It is here necessary for me to advert to that fact that a seriously disturbing element in the nomenclature was introduced by the influential textbooks of Prof. J. D. Dana. These fine books were in general use among students up to 15 years ago and in many places are still preferred to all others. Prof. Dana's effort to group the New York units was doubtless for the purpose of simplifying the subject to the student. The geologists, as I have said, introduced only in a very few instances a combination of the units into groups of the second degree. Under the term Erie division Hall did propose the name Hamilton group composed of the Moscow shales, Encrinal limestone and Ludlowville shales, but Dana so changed this particular group of the second order that his Hamilton group embraced the Marcellus, the Hamilton and the Genesee shales. It is thus that the term Hamilton group is generally understood and generally employed today. This secondary grouping of stratigraphic units is always of very minor importance to both student and investigator. It is the units themselves that are vital. But Dana's group terms duplicated in almost every case a unit term. There was the Trenton, the Niagara, the Corniferous or Onondaga, the Hamilton, the Chemung, etc. redressing in broader sense terms already employed as units. The adoption of this usage has been a source of endless confusion to investigators and of some distress to students. It is a practice now wholly discountenanced and discontinued by geologists to employ any local term, and local terms are alone acceptable to the science at present, in a double sense; to apply it to a lithologic or stratigraphic unit, that is, to one of the integers in the succession of rocks, and also to use it in a broader sense embracing a number of such units.

When we took up the restudy of our formations it was at a time when active operations were progressing in the Paleozoic rocks in other states. If we had not introduced substitutes for the terms of the second order, using for them names derived from typical New York sections, the geologists of Maryland, Virginia, Ohio or Pennsylvania might have done it for us. It would have been a very slender gratification to our pride in the work of the original geologists of New York to have seen, for example, the term Hamilton group laid aside and replaced as had been proposed, by the name Romney group, a Virginia term. I desire to repeat the statement that these combinations of units into groups of the second order are pure conventions highly subject to variations in their limitations but designed chiefly to express the continuation of a given assemblage of organisms through a series of differing sediments. Thus the term Ulsterian group conveys the idea of the perpetuity of essentially one fauna through the arenaceous Esopus and Schoharie grits and the highly pure Onondaga limestone while this fauna differs from that of the Oriskanian group beneath and of the Erian above.

The scheme of classification promulgated by the four geologists was inharmonious in one essential particular. Dr Emmons, the senior of the body, a more practised geologist, a founder of the Albany Medical School, professor at Williams College and at the Rensselaer School, believed that he had found in the disturbed and complicated rocks of eastern New York which were within his district and in western Massachusetts where he was much at home, an entire system of strata lying on the crystallines and in his belief beneath the Potsdam sandstone. It was he himself who determined the Potsdam sandstone so highly developed in the western part of his district, as the base of the stratification there, and which was accepted by his colleagues as the basal element of the New York series. But in eastern New York through the region of Washington and Rensselaer counties and the Taconic hills he convinced himself of the existence of a great thickness of rocks, determined by stratigraphy solely, as older and lower than the Potsdam, and this he proposed to call the Taconic system. In this view his colleagues would have no share. They delegated Vanuxem, a careful and judicial observer, to go over the evidence. Just then Sir Charles Lyell, who had acquired a very influential position in English geology, on a tour of the States, visited New York and was interested in what had now become a controversy. He too visited the field under the guidance of Vanuxem. The decision was opposed to Emmons's view—the Taconic system so called was but a mass of altered and disturbed Silurian. It was ruled out of all reports except Emmons's. But Emmons stuck by his convictions. When the survey's geologic map was issued he issued another with the Taconic system colored in.

The reports of the geologists published and the survey concluded, it was believed to be, as it was indeed, of supreme moment for the perpetuity of the classification, that the study of the immense wealth of accumulated fossils should be continued. This Emmons desired to do, no doubt seeing therein an opportunity for vindication, but he was no match in political astuteness for his younger colleague, Hall—few men were—and Hall took this work, while to Emmons was assigned the preparation of the agricultural reports. In these however he found the opportunity to fully exploit the Taconic system in New York and therein he published accounts of some of its fossils. His claims received no hearing. His determinations were either ignored or pronounced impossible, he was castigated by Silliman in the *American Journal of Science* (the leading scientific review), he was persecuted by the geologists of his own State, dragged into the Albany courts by a former colleague and mercilessly assailed on the witness stand by Louis Agassiz. The fire of scientific orthodoxy burned hot in those days and kissing went by favor then as now. Ignored, persecuted and treated with contempt Emmons was virtually driven from the State of New York, but with undaunted spirit still firm in its convictions, he devoted other years to the elaboration of his Taconic system in its southward extent along the Appalachians, even up to the date of his too early death in North Carolina.

for 50 years after its announcement the term Taconic system was barely mentioned in American science. The student of geology would have known nothing of it from the textbooks of the time and I for one completed my preliminary training in the science without ever having heard of it. It was a conspiracy of silence broken now and again by a diatribe from the *American Journal of Science*. Not till 1896 when the last of Emmons's geologic contemporaries and persistent opponents passed off the stage, did the air become clear and the ground free for a judicial discussion of his propositions.

Emmons was right. There is a great system of rocks and a great series of faunas in New York below the Potsdam sandstone. Such a series of strata was located by Sedgwick in Britain at even an earlier day than Emmons's and was called by him the Cambrian. Over this word and its bearings was waged still another controversy as warm as that in America. Subsequently the remarkable fauna of these primordial rocks in Bohemia was depicted by Barrande but by the testimony of Barrande himself and in the honest knowledge of all geologists it was Emmons who first showed from its fossils, the only infallible guide, that the Taconic system was earlier than the New York series and does include strata of immense thickness and tremendous importance because of their carrying the first known organisms of the earth. To Emmons and New York then belongs the honor of this discovery. From a sense of loyalty to our State, of justice to a great geologist greatly wronged, from the fair claims of priority we ought to employ the term Taconic in preference to Cambrian. During the dead years of silence from 1860 to 1890 the latter word gradually came into use and though not employed at all now in its original sense it may nevertheless become difficult to displace it.

I hope it has been made clear that the prime motive and purpose in our revision of the New York nomenclature of the geologic formations have been those of loyalty to the landmarks which our fathers set up, to prune off, so far as circumstances would permit, an intrusive overgrowth on the foundation stones. The classification by the original state geologists was prophetic and almost ideal; it was adjusted to the known facts and flexible in adjustment to those since become known. Its integrity was marred by later propositions from without and threatened by improper combinations. Our efforts have been directed to rooting out these adventitious growths. Our propositions have only the appearance of novelty, for the less correct usage had become so firmly ingrained that it seemed authentic. We have endeavored to return to the simple usages of our distinguished founders.

As I speak of simplicity I can almost hear the smile which greets the expression as some of you recall our present record for the multiplication of geologic units, and this brings me to another, a very different and highly important phase of our subject, from which the motive of loyalty to the historic past is necessarily eliminated and where the demands of the active progressive present control. We have greatly increased the number of unit terms in our classification. They have now become so numerous that taken as a whole and at any one time, in my judgment and I doubt not in yours too, they can hardly fail of being an embarrassment and source of confusion to teacher and student alike.

The geology of New York has not remained stationary since 1843. It is 60 years since the original survey was closed but the work of analysis of our formations and their faunas has gone on during all this time without an interruption. The body of fact thus accumulated is enormous, the knowledge of our formations and their faunas most refined. New York has become a fountain head of knowledge of the older rocks and of the earliest assemblages of organic remains to appear on the earth. It should be a matter of pride to us all that New York is more accurately known paleontologically and geologically, than any equal area on the western hemisphere. I will go even further. Last month I received a letter from the most distinguished of French geologists in which he exclaims: "The work of the geologists of New York has made the paleozoic formations of America better known than those of the Old World."

When the waters of the great Appalachian gulf of Devonic times were depositing the sediments of the Portage group they laid down sands in eastern New York along an estuarine and brackish bottom, through central New York ran the littoral zone of prolific marine life, in western New York was deeper water with black muds among the fine and coarse grained silts. In eastern New York the organisms of the rocks are estuarine and wholly unlike the profuse littoral fauna of central New York and these again fundamentally and entirely different from the fauna in the Portage rocks of western New York. These three distinct faunas represent three distinct geographic or bionic provinces and yet they were absolutely contemporaneous and the strata containing them are essentially continuous across the State. There is but one method of procedure in setting forth this condition in stratigraphic nomenclature. Each province must have its own series of terms and multiplication of units is required for precision of expression. All are Portage—there is but one Portage time the world round—but all are not the same Portage, one may be Oneonta, one Ithaca and one Naples. What is true in such a case is equally true in others. The old stratigraphic divisions are losing none of their integrity but their more refined study continues to bring out differences of expression in fauna and in rock composition which for the exactitude of our science, for the proper handling of our problems can only be expressed by additional local terms for minor divisions. Hence we have multiplied these in some measure. Progress will demand that they increase rather than lessen. We are not seeking opportunities to augment this already formidable list but when the necessity arises we can not only not fail to recognize it but we also can and do endeavor to keep out extra-New York names.

On account of the peculiarly long east and west coast line in New York during the period of deposition of the old rocks our classification is gradually becoming a nomenclature according to meridians. That of eastern New York will not concur except along broader lines with that of western New York and this divergence of expression in terms is bound to grow with the progress of knowledge.

If I have now indicated in a broad way the basis and principles of our classification let me add in the way of suggestion: No one will carry all these terms in mind. I have a list of them constantly on my own desk. Instruction in geology is little without local application and the increasing refinements of our system will help to illumine the local geology as the broader terms alone could not. Supported by an acquaintance with the grand divisions, the unit terms become to the student a guide for home use. It need not concern him what the array of units may be in some other meridian of the State. They are not for practice in mnemonics and they will not appear among the questions on the Regents examinations, but they are the names of the successive pictures which portray the wondrous story beneath our feet.

Albert Perry Brigham—I approach the discussion of Dr Clarke's paper from the point of view of a teacher, quite aware that he, as an expert authority, may see good reasons for changes which must be adopted slowly, if at all, by the teacher. Perfect uniformity in the usage of all persons and at all times can not be expected, because geology is a growing science. Thus our knowledge of the Cambrian has vastly increased and its rank as a time division has changed during the past 20 years. The time divisions are not sharply defined, indeed they shade into each other because formations and faunas came into existence by processes of evolution in which sharp transitions are few. The history of England or of America is coming to be taught, not by reigns or administrations, but by what are, on the whole, periods of national or social unfolding, and no two historians are likely to be in exact agreement in their drawing of limits.

Thus changes in nomenclature are sure to come, which means that names will be used longer by some than by others, that misunderstandings will arise, and that the fittest will survive. The rest will be embedded in the older literature as fossils in the rocky matrix, to perplex the reader or stir the interest of the historian of our science. Thus names will be tested by their usefulness and agreement, if it ever comes in any degree, can not be arranged offhand, but must grow.

It is a safe principle that the textbook should be conservative in making changes. If the author is sure a change is needed, and is in full accord with truth, he must make it, no matter how much he puts us to inconvenience, but he should hold the old name for a time, to preserve the connection and tide the learner safely over into the new usage. If he is in some doubt of the necessity of change, but regards it as probably wise, he may keep the old in the first place, but bring in the new as a possible alternative, to be tested in the course of time.

Without question, local geographic names must replace mineralogic or accidental names, for the smaller units of formation and the briefer time intervals. We must have a place name, of a type formation, which can be visited and identified by any one. Thus Calciferous is most properly replaced by Beekmantown, Corniferous by Onondaga and Birdseye by Lowville. The old terms are merely unhappy exceptions to that general policy of the older geologists in our State, which did so much to make the New York series a North American standard. In the end, Beekmantown and Onondaga will be as familiar and as full of meaning as is Trenton, Medina, Hamilton or Chemung.

My own preference as a teacher is for three and but three orders of time interval. I would say era for the major divisions, period for those of the second order, and epoch for those shorter divisions which may be fairly expressed by the rocks and fossils of a single locality. Subordinate place names might be needed for various expressions of type, and these can be multiplied so far as found useful.

The epoch names would of course, vary with the region, as from New York to Iowa or the Great Basin. Some important or persistent formations or faunas, like the Trenton, might and would give the local name wide currency, as would the early adoption and prolonged use of such a name.

Finally, the teacher need not teach with equal insistence, all the nomenclature of the book. For my part, in elementary work, I should have the eras and periods pretty thoroughly learned, because they are important and because broad pictures of their life and their geography can be drawn, and made more or less real to the student. But the lesser divisions should be taught in detail only as a few of the type localities can be actually visited or are personally known to the class. Fortunately for teachers in our State, the places are few where the student can not see two, three, or half a dozen type localities and he can thus learn in a real, even if incomplete way, the principles of all geologic succession.

P. F. Piper—The matter of the classification of the rock formation is a very important matter to us in Buffalo for much of our work is done in the field. Within a radius of 20 miles we have sections of all the local rocks from the Medina to the Portage. Our pupils are required to make not less than five class excursions to the neighboring quarries and gorges. Written reports and sketches of physiographic features are made by each member of the class. It is just here that the question of nomenclature comes in. We have the rocks and the fossils with us always, but the names of the formations may not be the same from one year to another.

That geology is a progressive science is proved by the fact that our present schemes of classification are not permanently established. Teachers will welcome any changes which may simplify the existing confusion due to the difficulty of correlating the terms proposed by the students of the subject. While welcoming these changes, conservatism would suggest that old classic terms should not be displaced if it be possible to retain them. The mere retention of a name for the sake of the name, or because of local pride, or in order to honor the memory of former masters of the science, is unreasonable and absurd if a more exact modern term would better meet the requirements of the science.

In some cases it is not clear that a change is for the better. The term Niagara is a case in which the substitution of Lockport would not be an improvement. Trenton is equally well known and only serious objection to its continuance by competent authorities should warrant its displacement. There would be little, if any, objection to the reintroduction of Taconic or the other terms suggested in Dr Clarke's admirable paper. The teacher can readily adopt the new system of classification for class use, for the pupils can learn one scheme as well as another. Unfortunately the textbooks can not be so easily changed, and the mature as well as the immature student is greatly confused by his inability to correlate the two systems. There should be some compromise and an agreement as to the major units and the Regents should not hold pupils responsible for anything else except the local subdivisions in the immediate vicinity of the school. We wish to thank Dr Clarke for the very valuable work he has been doing and we desire to cooperate with him in every way possible.

Monday afternoon

SECTION MEETINGS

Section A. PHYSICS AND CHEMISTRY

FUNDAMENTAL THINGS IN PHYSICAL SCIENCE

BY HOWARD LYON, ONEONTA NORMAL SCHOOL

As physical science must be regarded as a foundation on which other science is developed, or, rather, as other science in the light of recent knowledge seems to be but a continuation of the study of physical science, it is important that this foundation be laid well and strong.

One who surveys carefully the field of popular physics is surprised to find that the number of fundamental ideas and principles is very small, and if a teacher has instructed his class thoroughly in these he is quite apt to be disappointed by the seeming meagerness of his work. However, no effort contributes so much competency in students as thorough grounding in those conceptions that form a basis for larger thought.

Ideas should be driven home by repeated examples, by questions, by experiments, and specially by constant appeal to early experience.

I take it that the work in physics in the high school and in the first year or two of the college course has to do largely or wholly with thorough instruction in what may be termed familiar principles such as were worked out with great care by early investigators and such as have to do with the phenomena of everyday life.

In glancing over the large array of new texts in physics one is impressed with the idea that these works are leading students farther and farther away from the always attractive and severely plain works such as the old *Comstock's Natural Philosophy*. Newer works are very fascinating to one who has become familiar with the facts simply stated of the older writings, but are bewildering to the student who has just begun his study of physics. It seems a matter of regret that we no longer have such an illustration in physics as Pascal's bursting cask, for that picture kept one wondering till he finally understood the principle of hydrostatic pressure. We miss, too, the picture of Franklin storing his Leyden jar with electricity from the clouds. Perhaps the vague notion in the mind of bookmakers is that the picture would thwart the tendency of the modern student to discover for himself the relation between the cause of lightning and electricity.

It would seem sometimes as though we were assuming that the children of this later day were quite as wise as the mature Archimedes. As a matter of fact it requires a good deal of drilling of an 18 year old high school student to give him a sufficient grasp of Archimedes's principle to last him six months.

My wish is not for a return of the good old days but for a continuance of what was valuable in early teaching. The older books contained but few elementary principles, but these were effectively illustrated by word and graphic pictures. Perhaps an analogy may be found in the old time reading of very few books but reading these thoroughly.

The superiority of students trained in the meagerly equipped country schools over those who are given the advantage of splendid city high schools confirms our opinion that long contemplation of relatively few objects of interest furnishes a better means of strengthening the mental processes than acquaintance with a maze of bewildering sights.

My acquaintance with papers in physics and chemistry of candidates for state life certificates in New York State convinces me that the amount of definite knowledge shown by high school, normal school, and college students is often all too meager to merit the conclusion that these students are fairly educated.

If the question calls for a drawing and explanation of the principles of the telephone, there is presented a nebulous picture with a few remarks to the effect that, as the person speaks into the transmitter, a thrill of vibration agitates a hundred miles of wire with a message of sympathy to the distant listener, all of which rather suggests that our critics are wrong who begrudge us the time devoted to physics that it may be employed in the humanities.

It is not my purpose to facetiously criticize the results of the teaching of physics, but I know from the perusal of papers coming from the various quarters of the State that sound training in fundamental things is not all that could be desired nor all that is possible.

To better illustrate my contention that students of science are wofully deficient, at least those who are striving to obtain first grade or life certificates for teaching, I will read a few actual answers.

To the question calling for an illustration of the fact that a vacuum will not transmit sound the answer was:

" Put a man in a zinc box, exhaust the air, and make him holler."

Another answer: " A planet has a tendency to move backward in its orbit. This is known as the planet's retrograde motion."

" Roemer discovered the velocity of light by observing Jupiter's satellites and noting the time that elapsed after the satellites were discovered with the telescope before they were first seen by the naked eye."

" To repair a dislocation requires two persons, one to hold the leg and the other to pull it."

The properties of nitrous oxid: " If breathed for a short time it produces unconsciousness from which however the victim recovers with shouts of laughter."

What can be done to improve the teaching of physical science? I would first urge the judicious selection of topics of study by the application of common sense to the adaptation of the course of work to the experience and interests of youth.

A prominent teacher of physics remarked to me recently that a certain city that chose its instructors by competitive examination wholly was, in his judgment, making a serious mistake; for men with doctor's degrees were taking the positions and attempting often to do just the work in physics or chemistry that last engaged their own attention in the university. He believed that plenty of men and women could be secured who had been tried thoroughly in the schoolroom and whose power to adapt work had been abundantly proved.

I am acquainted with two teachers of more than average ability who have been trained in a leading university and who did the work in physics in that institution entirely to the satisfaction of their instructors, who say that when they began to teach they knew almost nothing of simple high school physics and were at a loss to know how to begin their work. They had been working on constants and coefficients and specific values whose meaning they only vaguely comprehended, and training in popular physics had been neglected.

However, much work of the sort mentioned above is needed in the technical schools. It is evident that the average citizen should be trained first in the physics of the lever, of fluid pressure, of expansion by heat, and of kindred familiar principles.

It is by no means true that physics and chemistry are not finely presented in many schools.

I have just had the pleasure of inspecting the splendid work in science of such institutions as the Teachers College in New York, of the Erasmus Hall High School, and Pratt Institute in Brooklyn, of the Binghamton High School, and similar institutions and I found in these places a real delight in scientific research shown by the young men and women in attendance.

Here and there in small union schools I know that superior instruction is afforded in science, because teachers possess the knowledge and tact to adapt work to the student seeking instruction.

At the Teachers College I saw working models of hydraulic elevators and of other commercial devices in use about the institution, all of which illustrates the point that I would make, namely, that the study of science should afford explanation of the devices and phenomena that are right at hand and familiar to the experience of those taught.

The preface to the first edition of J. Dorman Steele's *Fourteen Weeks in Chemistry* says that the author "has not attempted to write a reference book lest the untrained mind of the learner should become clogged and wearied with a multitude of details. Unusual importance is given to that practical part of chemical knowledge which concerns our everyday life, in the hope of bringing the schoolroom, the kitchen, the farm, and the shops into closer relationship."

With such a purpose on the part of the author, it is fortunate that his works won so large a measure of popularity.

I will confess that I have but little interest in those queries that run: How can a student be best prepared to pass college entrance examinations, or Regents examinations, or examinations licensing candidates to teach? I believe in that sort of common sense preparation that will enable one to pass any reasonable examination through acquired ability to reason, and sound and definite information.

We are here to discuss the best methods of teaching that we may fit students to go on to larger study or to take up intelligently the still larger problems of life.

Our task is distinctly that of laying a good foundation.

We would be disappointed indeed if work in a normal school which has reference to preparation for teaching did not fit students as well for the problems of the college, or technical schools, or business life.

We have students, to be sure, who are at the bottom of their class, but General Grant found just such conditions at West Point.

A gentleman told me of an experience which he had with a high school teacher who had been trained in a leading college that would show that even with such preparation one might be lamentably weak.

This young man told his principal on one occasion that he could not make a common electric bell work and he asked for help that he might be able to explain the apparatus to his class the following day. When the principal investigated the difficulty with his assistant, he found that the young man had run two wires from the poles of his electric bell to the poles of a horseshoe magnet. And the bell wouldn't ring!

I am quite inclined to think that exercises in the laboratory that have for an object the determination of the coefficient of torsion could better be given when a student has occasion to apply this principle to torsion in the suspension fiber of a galvanometer. Problems relating to bending effects produced by additional weights on bars of wood could be left to the technical schools.

With the possibility of wearying some who have closely thought out their line of work, but of helping others to determine the best course, I will ask the forbearance of the former and give what seem to me fundamental things in the various departments of physical science.

Mechanics. A general conception of matter, mass, and weight; the tendency of masses and molecules to approach one another—called gravitation and cohesion; cause of motion in matter—simple and resultant forces; character of motion under the action of momentary and continuous forces; force acting through space—energy; "action at a distance" and the relation of impelling forces to distance; the equation of the machine in action as the product of the force by the distance through which it acts and of the resistance by the distance through which the resistance is overcome; pressure in fluids; the product of the area of a surface subjected to pressure by the average depth of the surface by the density of the fluid.

Heat. Yielded by arrested mechanical motion, chemical action, and radiation; causing expansion; means of distribution; units; in relation to the phenomena of liquefaction and vaporization; relative capacity of bodies for absorbing heat; the equation of exchange; heat units absorbed equal to the heat units supplied; mechanical equivalents; applications.

Sound. Motion of wave and mutual action of waves; mediums for transmission and velocity; intensity and distance; reflection; character of sound determined by frequency of vibration; the musical scale; pitch as modified by tension and the quantity and nature of matter; musical instruments.

Light. The ether, its waves, and their mutual actions; intensity and distance; relative obstruction offered by different kinds of matter to light waves; the laws of reflection and refraction in explanation of familiar phenomena; separation of dissimilar waves and the phenomena of color; polarization.

Electricity. Static charges with a view to illustrating the idea of quantity, density, and potential, and of electricity as a measurable thing; points differing in potential connected by a conductor as a condition necessary to produce the so called current; degrees of electrical resistance in bodies; ways of producing difference of potential and the work of currents, specially heating, electrolytic and electro-magnetic effects; Ohm's law and the definite units involved; the determination of resistance, current rate of flow, and difference of potential; comparison of electric and mechanic units; the magnetic field; the relations of lines of force to one another and to various mediums; current electro-magnetic effects and instruments; development of currents in a closed conductor by changed relation of the conductor to constant or variable numbers of lines of force; application of principle to instruments; phenomena of currents in rarefied gases.

Chemistry. Physical and chemical changes; elements and compounds; nature of gases and their specific gravity; Avogadro's law and deductions from the same; weights of molecules and the analysis of compounds containing a given element with a view to determining the weight of the indivisible portion or atom of that element; the method of determining, and meaning of chemical formulas; the analysis of air and water and compounds of the elements of air and water; the principle of affinity as illustrated by the processes of oxidation and reduction; atomicity and the chemical equation; a detailed informational study of well known elements and compounds with distinctions and nomenclature.

How much of the course outlined can be presented in a high school? That all depends upon the time allotted, but I would say all of the above topics would be presented in any fairly liberal time allotment.

It must be borne in mind that any course that does not hold a student rigidly to a perfectly definite line of propositions must fall short of the best results.

Something of consequence should be presented but, whether the amount be much or little, a firm mastery of that must be attained.

First books in physics are made valuable by heavy type headlines that fix and hold attention to fundamental ideas.

I valued very much the suggestion which Prof. Josiah P. Cooke of Harvard used to offer concerning laboratory books in chemistry when he said, "Use flaming headlines to express your idea of the importance of the results you secure."

It is desirable that a textbook should be small, not too wordy, and the explanation by the teacher should be brief except in the abundance of illustrations.

The points made should stand out prominently. Clear, strong statements in the best possible English count most, and their mastery by the students should be proved by close questioning that would show beyond a doubt that the principle was understood.

Having been mastered, its staying qualities should be tried at intervals by review problems to which the principle is applicable. Teachers need constantly to be on guard when presenting work to students lest they mistake their own enthusiasm and proficiency for that of the students.

I have heard college specialists say that they would prefer to have students do the beginning work in the various branches of science in the college. Beginning work must be done somewhere.

Why may this not be done splendidly in secondary schools by well trained teachers who possess knowledge, enthusiasm, and common sense?

Those whose work ends in the high school should have an opportunity to study physical science, and others who are preparing for college may be so well trained that the college instructors will be aided by the thorough fundamental preparation.

Probably it is not training elsewhere that is objectionable but insufficient training.

I believe that one can not attach too much importance to the use of cross-section drawings as a means of bringing out clear thought.

Good English speech and the power to illustrate and construct must ever be to the world satisfactory evidence of acquired power.

Finally, to be able to distinguish between essentials and nonessentials and to rate everything at its proper value is a high art everywhere recognized as a sign that its possessor is an individual of force and usefulness.

In this discussion I have made only a simple plea for the best possible training of youth that they may be able to understand a science of wonderful beauty and meaning to all who have dreamed of the something that underlies all reality.

Section B. BIOLOGY

CORRELATION OF BIOLOGIC SCIENCE WITH DRAWING AND ENGLISH IN THE HIGH SCHOOL

BY C. STUART GAGER PH.D., NEW YORK STATE NORMAL COLLEGE, ALBANY

It will make our discussion much more definite to define clearly at the outset the limits of the subject. By biologic science we mean the work in botany and zoology in the high school. Concerning the correlation of nature study with other subjects in the grammar school we have heard much and discussed much. Textbooks on nature study have been written on the basis of such correlation, and in looking them through one sometimes wonders whether the intention has been to give the pupil an appreciation of nature or of anthology, of flowers of the field or of flowers of literature. Our discussion does not include nature study. Correlation is accepted here and almost universally practised.

Not so however when we come to the question of the correlation of biologic science with other subjects in the high school. Is it practicable and desirable to correlate botany and zoology with the high school work in drawing? I do not say possible. The pupil may study a butterfly in zoology, make the required drawings which shall be accepted by his drawing teacher as an exercise in that class, and write a description of his specimen which shall be accepted as a theme by the teacher in composition. Thus briefly put the problem is easy. No scheme for harmonious relation of the work of different departments could be more simple or more clear.

But is this plan that I have just outlined correlation in the sense which that term should always carry in education? Before attempting to answer this question we should keep clearly in mind the fact that correlation means co-relation. That is, each study should receive help from its association with the other. The advantage must be mutual so far as the subjects are concerned, as well as helpful to the pupil. The work in one study should enable the pupil to read more meaning into the other.

Correlation should have regard above all things else for the main purpose of each subject. One writer[1] has recently said, "If attention to correlation means neglect of the first principles of art, then the sooner the fetish of correlation is thrown away the better." So may the teacher of English protest, and so may the teacher of biologic science.

What, then, is the purpose of art education in the high school? Negatively, it is not to make artists or even draftsmen. About 1885 the idea began to be emphasized that drawing should be taught, not for its own sake, but merely to furnish the pupil with a tool which he could use in other studies or pursuits. He should be taught drawing just as he was taught the alphabet, so that he could read, or mathematics, so that he could keep his own accounts. The introduction of the idea of utility, the commercial idea, was to be expected in America. It could truly have been prophesied. Our mission as educators is to combat it, and place before the pupil a higher ideal than this. There is a limit beyond which it is not desirable for education to emphasize or reflect the tendencies of the national and social life of the time. So, also, should we emphasize the fact that art education and drawing are not synonymous. Drawing will form part of a well rounded course in art, but only a part. Mechanical perspective and the production of working drawings will be included but will not be all inclusive. The art idea also will dominate part of the work in drawing, as when the pupil will be told to draw a branch of witch-hazel in autumn, or to sketch a leafless tree in winter.

---

[1] Coburn, Frederick W. Art in Public School Education. School Journal. 1901. 62:353.

This is what the purpose of art education is not. What it is, is not so easily told. Perhaps I shall be less open to contradiction in the positive statement if I use the words of a teacher of art who says[1] that "the study of art has for its true function the cultivation of good taste." This purpose is quite different from the education of an artist. The artist's work has for its purpose the expression of an idea or emotion "in accordance with the unalterably established canons of beauty," and his training must develop his natural ability along this line, but in the high school the purpose should be to give power of appreciation versus power of execution.

The student in the high school will doubtless learn something of how to draw and paint, and may possibly acquire some skill in doing both, but the chief aim should not be to train artists. The course will have accomplished its highest purpose if it has enabled the teacher to discover the born artist or draftsman, or if it has done what is still more important, namely, enabled him to discover himself.

And how shall we state the case for biologic science? Here also the aim is not to give technical training, or to produce specialists. There is a higher purpose than this, namely, to enable the pupil to come to himself. The course, it is true, should give him a foundation for more advanced biologic work, should he ever wish to pursue it. It should also help him to interpret h environment, and conform to it, and give him an appreciation (living things, but I believe that the fact needs special emphas now that the function of the high school in all its courses : something more than technical training and preparation fc college. It is preparation for life. If three or four years (college shall form part of the pupil's life he should find himse prepared for it by his high school course, but if college shoul be eliminated he should not feel that his preparation is any le adequate.

---

[1] Coburn. *l. c.*

All of this may seem a long way round to correlation, and y I believe that the intelligent discussion of the question deman a recognition of the truth of what I have said. As teachers (biology we must not let our own needs blind us to the rights (other subjects, or demand from them concessions calculated t defeat their highest functions in the curriculum. Lack of abilit on the part of our pupils to record their observations by accura drawings does not lead logically to the conclusion that the teach of art should give instruction in the drawing of microtome se tions as seen under the microscope. Neither does it follow th drawings acceptable to us would necessarily satisfy any requir ments of the art course.

In how far may biologic science and drawing be so related to be mutually helpful in the attainment of the main purpose (each course as stated above? I shall, perhaps, not voice tl opinion of the majority when I answer, only to a very sligl degree. The points of view in the two subjects are as diverse north and south. One is analytic, the other synthetic. The point of contact is the art of drawing, but the sole purpose of tl drawing in biologic science is to record a fact, in art it is express an idea or feeling or impression. The object of the arti is to express himself, but if there is any one thing that the scie tist must eliminate from his drawings it is self, specially h emotional self. It is his business to express nature.

Contrast, if you please, the artist's representation of the he of a dandelion or of a golden-rod with that of the botanist. (

what value would the former be in a laboratory notebook? Of what earthly use would the latter be in an art gallery? The artist draws a leaf to show the kiss of autumn and the warmth of Indian summer. The high school course should enable the pupil to appreciate this, and should disclose to him any natural ability he may possess so to draw a leaf as to convey this message to another. The botanist draws the same leaf to show a serrate margin, palisade parenchyma, and pinnate venation. The two purposes are mutually exclusive, and the drawing is of value in one subject just in proportion as it is lacking in the qualities that make it of real worth in the other. The purpose of the scientist is analysis, that of the artist synthesis. Dissection is the death alike of art and of nature study, but it is the very breath of life of biology.

I have not forgotten that Ruskin has said that, "The greatest thing a human soul ever does in this world is to see something and tell what it saw in a plain way." And Ruskin was speaking of art. To be true to nature he tells us is what the artist should strive for. But the correct interpretation of this principle is not as easy as its enunciation.

John C. Van Dyke says,[1]

> You may be possessed of the idea that the object of a painting is to see how closely the artist can imitate nature—many people have such an idea. I beg of you to discard that likewise. Imitation never made anything worth looking at the second time. The world is indebted to it for nothing. The imitators have all died, like "poor Poll," without leaving a trace of anything we appreciate or care for. Their labor has been too ignoble and purely mechanical to endure. The painter detailing nature upon canvas line upon line, with no hope, object, or ambition but that of rendering nature as she is, is but unsuccessfully rivaling the photograph camera. The sculptor working in a similar fashion is but emulating the hideousness of the wax figure. No; the object of painting is not to deceive, and make one think he stands in the presence of real life. Art is not the delineating of peanuts and postage stamps in such a realistic manner that you stretch out your hand to pick them up; nor the molding of bronze and marble so that you start with surprise when you find that they are

---

[1] Van Dyke, John C. How to Judge a Picture, ch. 9.

> not living. True, painting and sculpture are classed among the imitative arts, and so is poetry; but consider how far removed from reality is poetic language, and consider how wide the gulf between nature and the greatest masterpieces of painting. The idea of imitation is a false conception of art throughout. Painting is a language, and trees, sky, air, water, men, cities, streets, buildings, are but the symbols of ideas which play their part in the conception.

And further on we read, ·

> A familiar scene—of valley, lake, mountain, or brookside—is chosen, and painted as it is, with lack of thought and want of feeling, painted simply that you may have a facsimile of what you possibly may not possess in reality. Such pictures are good reminders of the places we have visited, like the photographs we buy along the line of travel, and they may not improperly serve to conceal a break in the wall paper of the drawing-room; but they scarcely add to the world of art.

The artist must discover hidden beauty and reveal it to the world—the scientist must discover facts of structure and make them clear as day. Are the flowers of the forget-me-not sympetalous or polypetalous? What would the botanist not give to know, and what annoyance would it not cause the artist to have his attention distracted by the problem! "Paint the soul," says Browning, "never mind the arms and legs." Paint the arms and legs, says science, with all the bones and tissues and cells, and never mind the soul. The highest purpose that can be served by a drawing in science is to record a fact, that which was actually seen, but the purpose of the artist is to express the emotion occasioned in his own breast by what he saw. "Give us no more of body than shows soul," says Fra Lippo Lippi.

These two irreconcilable ideas not only dominate, the one art, and the other science, but should dominate the teaching of these subjects in the high school. How, then, may they be correlated? It is true that the artist must be able to see accurately and to tell the truth in his drawing. But that which he sees is beyond the ken of the scientist, as scientist, and he must not tell too much of the truth lest he descend to mere imitation. To use Browning's term, he must tell the truth "obliquely," which

Professor Corson[1] interprets to mean "inducing a right attitude toward, a full and free sympathy with the True, which is a far more important and effective way of speaking truth than delivering truth in re."

"Why do you paint the tree," asked the ignorant peasant of Millet, "isn't it there where any one may see it who wishes?" But the tree which Millet painted never existed till Millet created it. The model, it is true, was definite and particular in time and place and outline, but the painting of the artist is universal in every sense because it conveys a universal sentiment or emotion. This is why,

> "we love
> First when we see them painted, things we have passed
> Perhaps a hundred times nor cared to see;
> And so they are better, painted—better to us,
> Which is the same thing. Art was given for that."[2]

The pupil in the laboratory makes a drawing of a horse-chestnut twig, chiefly in order that he may observe it more accurately—incidentally in order to record his observation. I can see no reason why, after the science instructor has given his sanction to it, so far as botany is concerned, the drawing should not be accepted by the art teacher to stand the test of his criticism in partial fulfilment of the drawing requirements in the art course. But if the art course is dominated by the spirit and purpose of art and has not degenerated into merely a "class in drawing" there will not be many such opportunities. Just as forcibly might one argue that the teacher of biologic science should accept drawings made in the art room in lieu of additional laboratory study. And if we consider the other phase of the so called "drawing work," namely mechanic perspective and drafting, there seems to be even less opportunity to utilize the drawings made in one class in partial fulfilment of the requirements in another.

Every teacher of botany or zoology has realized that ability as an artist may often be a hindrance rather than a help in the laboratory. Here for every line in his drawings the pupil must be able to point to an element of structure in the object, but the art drawing must show light and shade and texture. How the pupil annoys us who persists in concealing structure by his profusion of shading! In the laboratory the pupil should confine his illustrations to simple line drawings. He may take his laboratory drawing of a fish into the art class and invest it with all the high lights and tone effects, and other accessories so dear to the artist. Its scientific value may possibly not be lessened thereby, but it is extremely doubtful if its worth as the record of an observation has been at all increased. Of course I am speaking now only of drawings made by high school pupils in actual laboratory work. What I have said does not apply to illustrations in textbooks.

---

[1] Corson. Introduction to Browning. Bost. 1899. ed. 3, p.56.
[2] Browning. Fra Lippo Lippi.

And how shall the case be stated for English? Here again it is a case of community of purpose. If our subject read " biologic science and literature" we should be worse off than when we considered drawing, but the problem is less complicated when confined to English composition. Obviously the aim in the botany or zoology class is that the pupil shall describe what he sees in the clearest, most concise, and most vivid language that he can command.

If we let the aim in composition be stated by the rhetoricians, we shall read, " there is no higher attainment in literature, none which has given to its possessors more lasting fame, than the ability to make pen pictures—to so represent a scene in words that the reader becomes, for the time, an actual observer."[1]

Here we have agreement in purpose in composition and in biologic science. The high school work in composition should have as its chief aim to develop on the part of the pupil this ability clearly to express himself.

The first prerequisite for a writer is that he shall have something to say and a desire to say it. Without this a mastery of rhetoric and of the principles of composition are of little avail.

---

[1] Clark, J. Scott. Practical Rhetoric. N. Y. 1891. p.263.

And yet the possession of something to say is not the only requirement. Some time ago a writer in *The Critic* said

> The development of scientific method is alleged to be one of the foremost characteristics of the present century. Philologists will ransack the earth, if not the heavens, for exact information as to date and authorship of even the fragments of ancient literature; botanists will tramp the forests for months to verify or disprove the rumor of a new orchid, and astronomers will go to any accessible point on the face of the globe for more exact figures on an eclipse or a transit of Venus. We might, then, expect to find a corresponding effort for exactness in the expression of thought, but an examination of the evidence is not altogether encouraging.

In *Science* for Oct. 30, 1903, P. C. Warman gives the results of his attempts to prove this assertion. Having an intimate acquaintance with the manuscripts of about 100 contributors to scientific literature, he has classified these writers as good, fair, and poor. Good means "those whose writing is clear, orderly and forcible"; fair, "those whose writing is, indeed, clear and passably methodical, but is not forcible"; and poor, "those whose writing is turbid or chaotic or has other defects which render it of little value, such as extreme verbosity." 24% of the writers fall into the "poor" group, 57% are "fair," and only 19% can be classified as "good."

This certainly emphasizes the need among scientists of increased ability to express themselves well. Where shall this training be given? One could hardly argue that time for it should be taken from the biology work. It is a question, pure and simple, of the use of good English, and therefore is a problem to be solved in the class in composition and rhetoric. "Doubtless," as Mr Warman suggests, "the technical description of a dinosaur or of an aboriginal shell heap can derive little aid from metonymy or climax, but the field of the scientific specialist merges insensibly in common ground, and when he is on the borders he is in view of the whole field of letters." What, therefore, are the possibilities of correlation between biologic science and English? What can the language contribute to help the science, and what may the science contribute to help the language, to the end that the burden of work may be lessened, its quality in both subjects improved, and the pupil ultimately benefited?

Compositions are classified under description, narration, exposition, argumentation, and versification. It is in one of these five formal classes of composition that we must find the opportunity for correlation. Surely we shall not find it in versification, neither in argumentation without forcing the matter. To be sure the pupil could write an argumentative paper to persuade another that the cotyledons of the castor oil seed are not plumules, or that the thorns of the honey locust are modified stipules. But I believe that any attempt at correlation here would be merely for the sake of correlating, or forcing a point.

Exposition is "the statement or discussion of an abstract or general theme."[1] Obviously there is little opportunity here for correlation. Of course all these remarks refer to high school work, and high school pupils. A Darwin or a Huxley may indulge freely in argumentation and exposition, but in the high school instruction in biologic science these forms of discourse would scarcely enter at all.

If the science class takes the much advised but little practised field excursions then there is an excellent chance for a narrative theme describing the trip. The teacher of composition ought to be grateful to the science teacher for furnishing a theme outside of the encyclopedia, and the science work will profit by the criticisms of the master in English. Here is a most excellent opportunity for correlation, for the work in both subjects will be greatly benefited thereby. Yet we are hardly justified in asking the language teacher to accept accounts of field excursions in biology in fulfilment of all the requirements on narration.

We have finally to consider description. What would the science teacher in high school or in college not give if his pupils could only describe in words what they see! Lack of ability to draw is chiefly lack of ability to see, but lack of ability to use the queen's English is due to something else besides want of power to observe. Here, indeed, can the work in biologic science profit by the work in English, but this does not necessitate correlation. General training in description will help the pupil when he comes to describe a starfish or a flower. The first requisite in the laboratory is that he shall observe the thing, and the prime test of the description is that it conveys to the reader in concise language an accurate, clear, and definite idea of the thing observed. Compare with this the first requisite as stated by Clark.[1] "The reader should gain a perfectly clear and permanent idea of the general shape of the object described." And so he proceeds to enumerate the criteria of a good description, in nearly every one of which the high school teacher of science bemoans the weakness of his pupils.

---

[1] Clark, J. Scott. Practical Rhetoric. N. Y. 1891. p. 283; *also* Standard *Dictionary*.

But after all has been said, I must affirm, even at the risk of being accused of arguing the case for the teacher of English, that, so far as correlation between biologic science and English is concerned, the limitations exceed the opportunities. Composition is par excellence a literary study. To make it merely ancillary to science is to defeat its highest aims. The pupil must be equipped to appreciate and distinguish the good from the bad in literature, as well as acquire ability to express himself well. Not many descriptive themes can be written in one year, and only a small per cent of these can come from the science work without weakening the course in composition.

The special problem we have been discussing is only one phase of a broader one. It involves the whole question of the possibility and desirability of correlation in the high school. On the whole I believe the plan which gives such admirable results in the grammar grades is neither feasible nor desirable in the high school. Younger pupils are not specialists. They are generalists. The treatment of the various subjects in the grammar grades is not intensive, but extensive. Lines of demarcation are not closely drawn. If you shut one eye nature study looks like biology, if you close the other it is literature and art, while if you look at it with both eyes open it becomes so broad that one writer may correctly define it as "seeing the things that are worth seeing, and doing the things that are worth doing," while by another enthusiast it is vaguely described as "a point of view." Surely there is nothing intensive here. A similar statement of the case may be made for geography, and number, and language. Not so, however, in the high school. All truth is one, to be sure, and the different knowledges are merely different views of truth. All the subjects of the high school course are related and interdependent. Computation belongs to both mathematics and physics, specific gravity to physics and chemistry, osmosis to physics and chemistry and the biologic sciences. All of these subjects must be expressed in language, and the verbal statement of them assisted by illustrations. It does not logically follow, however, that the curriculum must, or even can be, laid out on the basis of correlation. The treatment of each subject is intensive, and although in their broadest aspects all of the formal subdivisions of knowledge overlap, the exigencies of high school work make correlation impracticable. An attempt to force it to any great degree would only serve to introduce confusion and lack of definition. The best place for different subjects in the school course is a question on which there is yet a great diversity of opinion, and the program is quite likely not to favor correlation, for the principals, and not the teachers make the programs. Composition and drawing, for example, are quite likely to come in the first year of the course, while the chances are that the biologic sciences will come later. This alone is an obstacle to correlation.

---

[1] Clark, J. Scott. Practical Rhetoric, N. Y. 1891, p. 263.

In conclusion then there are three facts that render the correlation of biologic science with drawing and English, and correlation in general in the high school either impracticable or undesirable. First, lack of community of purpose in the various subjects; second, change from an extensive study in the grammar grades to an intensive study in the high school; third, lack of agreement in the time when the studies are pursued.

I fear I have not made out a very strong case on the positive side of my subject. The strength of the negative side, as I see it, is determined beforehand, and I can only hope that these words have given it clear expression and carried conviction to my hearers.

Harriette Arms Curtiss—In opening the discussion on the correlation of biology with English and drawing I wish to present four controversial points.

1 Knowledge is a unit. Students have been dividing it into fractions since the first attempts were made to classify. Halves, the so called trivium and quadrivium were introduced by the ancients and specialists have been developing the numerous departments of the modern curriculum ever since. It is as if a large open sunlit space had been divided by partitions into private apartments. Eact partition shades the area it incloses from a portion of the sunlight of truth. Mr Dewey has shown that all divisions among subjects are arbitrary and artificial.

Science teachers are beginning to tear down the partitions on the sides of English and drawing, two excellent points of attack but far from exhausting all possibilities. The resulting correlation so called is one of the most important tendencies in the science of education of today. Possibly the next generation will credit biology teachers with its initiation. It must be remembered however that one person or group of persons can not correlate, the word means to have mutual or reciprocal relations. Our friends the English and drawing specialists must come halfway in order to bring the subjects together satisfactorily.

2 One written page corrected by the biology teacher for English and subject-matter is of more value to the student than 10 pages that could be corrected in the same length of time for bald facts that in other connections are sometimes called gradgrind. Require as much written work as you like from students, correct as much as you are physically capable of doing, or a little less, for grammar and subject-matter, let the rest go and do not worry about it. Do not correct anything for the scientific facts simply. Accuracy is biology's first law.

3 Require a little written work for each subject studied. This may be notebook work, examinations, the written answers to two or three leading questions dictated one day to be prepared for the next or often one sentence or one paragraph written in five minutes of a recitation period on some subject, say "Physiologi-

cal Division of Labor." The nomenclature of science, when reduced as much as possible is so difficult that students can not master it with only oral use. In a physiology class of 26 members last month I developed the "mechanism of respiration" as thoroughly as possible. In an incidental test one excellent student wrote an excellent paragraph on the "Methodism of Respiration." I had never previously considered it a denominational process.

4 The correlation of biology and English means more than mere data plus grammar and rhetoric. Why not use Holmes's *Chambered Nautilus* when studying Cephalopoda tetrabranchiata, and Burns's poems *To a Mouse* and *To a Mountain Daisy* in appropriate connections? When teaching the circulation of the blood this passage from *Julius Caesar* may be introduced.

> You are my true and honorable wife,
> As dear to me as are the ruddy drops,
> That visit my sad heart.

The facts that Shakspere wrote *Julius Caesar* before 1610 and that Harvey discovered the circulation of the blood in 1616, the year of Shakspere's death, announced it in 1619 and published it in 1625 will impress any class with the marvel of Shakspere's genius as much as any English teacher could.

Have I proved these points?

Prof. J. E. Kirkwood—I agree in many points with Dr Gager but it occurs to me that where the biologic side of botany and zoology, or, if you choose, the ecologic side, is emphasized, fewer obstacles are presented to the proper correlation of these subjects with art and with English. In this connection we might point to the work of William Hamilton Gibson as exemplifying the possibilities in this direction. Gibson was preeminently an artist both in language and pictorial work, though dealing very often with commonplace things, and still is conceded to have been accurate as a naturalist. So it would seem to me that the performance of accurate work in biology need not by any means be divorced from the exercise of the artistic sense or the use of beautiful or eloquent language.

CORRELATION OF BIOLOGY WITH SANITARY SCIENCE

BY PROF. JAMES H. STOLLER, UNION COLLEGE, SCHENECTADY

The last 25 years have marked great progress in hygiene, using this term in the meaning given by Professor Sedgwick, as "the whole science and art of the conservation and promotion of health, both in individuals and communities." By a series of brilliant discoveries, essentially biologic in their nature, though the researches which led to them were made chiefly from the standpoint of medical science, a revolution has been effected in our attitude toward the causes and the means of prevention of many diseases. We know now that at least one half of the diseases to which the human body is subject are due to the entrance of organisms into the body, and their interference with its normal workings. To keep well means, to a large extent, the same thing as to keep these organisms out of the body, or to maintain the body in such a condition of vigor as to resist their attacks. It is now recognized that the health of communities depends to a large extent on the effectiveness of measures taken to prevent the incursion and spread of micro-organisms, producing diseases. State, municipal and other boards of health, organized to safeguard the public health, find their chief field of activity in putting into operation the means available for excluding and controlling infections, in other words, the specific organisms causing communicable diseases.

The question we wish to consider is whether the teacher of biology is to take into account this body of new knowledge regarding the biologic aspects of disease and its applications in sanitary science. Does it properly fall within the scope of his work to present it and, if so, how best can this be done?

As to the need of the education of the general public in matters of sanitary science there can be but one opinion. Professor Sedgwick, in his book, *Principles of Sanitary Science and the Public Health,* says: "With the single exception of the changes effected by the acceptance of the theory of organic evolution, there has probably been no modification of human opinion within the 19th century more wonderful, or more profoundly affecting the general conduct of human life, than in our attitude toward the nature, causation and the prevention of disease." Now the attitude here referred to is that of the sanitarian and of the medical profession. But the full benefit of the new knowledge will not be realized till the general public also shares in this attitude. The public will support and cooperate with health authorities according as it understands the principles and methods of sanitary science. It is still true that in many communities, specially the smaller villages and the rural districts, little attention is given to caring for the public health. There is still a vast amount of human suffering and loss of life that could readily be prevented if people were educated up to the point of appreciating the need of a vigorous supervision of matters pertaining to the public health. The day of epidemics of sickness has passed, or ought to have passed. When disease goes stalking through any community today it has back of it ignorance or carelessness which is a disgrace because it is unnecessary.

Should not the schools, then, have a larger share in this educational work? What kind of ignorance is it more worth while to dispel than that which is the cause of physical suffering and loss of human life?

Already instruction in hygiene is given in the schools. In connection with physiology there is usually taught the hygiene of food, clothing, exercise, rest, bathing, ventilation, the care of the teeth, eyes, etc. Our plea is for a more extended and comprehensive hygiene, including more of the facts about the nature and causes of sicknesses and of the methods of modern sanitary science in preventing sickness.

No new course of study is called for in order to give instruction in these matters. The work can be correlated with the usual courses in botany and zoology. The most direct connection is afforded in the treatment of these sciences from the systematic standpoint, or that of classification of plants and animals. Bacteria may be taken up for study as constituting one of the groups of plants. Even when the course in botany deals chiefly with the flowering plants, the teacher can readily give, as a brief supplementary course, some account of the simplest plants belonging to the microscopic world, and including the bacteria. In what is here said it is assumed that the teacher will have at hand a compound microscope and the few materials necessary for making some cultures of bacteria. We shall suggest presently a number of simple experiments and demonstrations that can be made.

In a course of zoology, a connection for presenting the data of sanitary science is afforded in the study of the protozoa. The amoeboid parasites, causing malaria, yellow fever and, according to a recent announcement, smallpox, may be considered in connection with the study of amoeba. The pathogenic bacteria may be referred to and their role in relation to disease may be discussed in connection with the bacteria that appear in the hay infusion employed to demonstrate infusoria. The integrity of a course either in botany or zoology need not be destroyed in order to include in it the study of the microorganisms, a knowledge of which bears so direct a relationship to human welfare. They are organisms, and it is as legitimate to study these in a course in biology as any other organisms.

But before going farther we wish to say, and with emphasis, that there should be no note of the alarmist, no touch of the sensational, in treating of the pathogenic organisms. The first thing to be said of bacteria is that as a group of plant organisms, numbering thousands of species, they play a useful part in nature and are beneficent toward man. But just as among the larger plants, while the vast majority are useful to man, supplying him with food etc., there are a few that are poisonous; so among these minutest plants, there are a few that are harmful to man, causing, under certain conditions, disease. At the right time it should be explained, too, that nature has provided safeguards against the evil powers of these bacteria; that, ordinarily, if the body is in a condition of health it has power to withstand the incursions of disease germs. The vast majority of bacteria that we take into our bodies, along with our food and drink, are destroyed by the action of the digestive processes in the stomach. It should be explained, further, that even where bacteria get into the tissues or the blood it has been shown in certain cases that the leucocytes, or white cells of the blood, devour and digest the intruders. In this connection, too, mention should be made of the wonderful power which the body has of producing within itself neutralizing substances, or antitoxins, which destroy the effects of the poisonous matters given off by the bacteria.

Of course these and all other generalizations should be presented, as far as possible, in connection with demonstrations, or at least in connection with a statement of some of the concrete facts upon which the inductions are based. Some simple demonstrations and experiments which will serve to make the work real to teacher and pupil and keep it in line with the methods of the courses in botany or zoology are here suggested:

1 A microscopic examination may be made of the material which accumulates in the mouth at the junction of the teeth and gums. It may readily be obtained by gently scraping with the blade of a penknife on the side of the lower incisor teeth. Along with the tartar, loose epithelial cells and mucus, will be found an abundance of bacteria representing (if I may judge from the exhibit obtained from my own mouth) several morphologic types, including spirillum. As an interesting historical note it may be mentioned, in connection with this demonstration, that the first descriptions and drawings of bacteria, made by Leeuwenhoeck, the father of microscopy, in 1683, were from material taken from the teeth.

The teacher may explain why the cavity of the mouth affords a favorable lodging place for bacteria. Its walls are moist and of an even warm temperature; the mucus and bits of food remaining in the mouth, specially if one is careless in the matter of cleansing the mouth and teeth, afford abundant nourishment for the bacteria. The mouth is in fact a favorable incubating chamber and bacteria rapidly grow and multiply there.

The pupils will wish to know whether these bacteria are harmful, and, of course, can be assured that they are not. Still it is wholesome to keep the mouth as free from them as possible—they undoubtedly cause a bad taste in the mouth—and it is as well to brush the teeth not only every morning but also every night on going to bed. It should be borne in mind, too, that bacteria have a part in causing the decay of teeth, and this is another reason for keeping the mouth free of them, as far as possible.

The teacher should then explain that certain disease-producing bacteria may find entrance to the mouth and cause disease. Thus diphtheria is always due to a specific bacillus localized in the throat, and finding its way there, apparently, through the mouth. Hence the danger of infection from the breath of persons suffering from this disease. How important then that diphtheria patients should be quarantined and that plenty of time should be given for convalescence before they associate again with their schoolfellows.

A brief explanation of present methods of diagnosing and treating the disease of diphtheria may then be given. The teacher will not of course go into technicalities and will avoid the appearance of assuming any special or professional knowledge. But the pupils can be told why the physician obtains a portion of the white membrane from the throat of the patient and how, if the bacillus of diphtheria is found to be present, an antitoxin remedy is administered. A statement may be made as to the great saving of human life, as shown by statistics collected by health boards, in regard to the number of deaths due to diphtheria since and before the discovery and use of antitoxins. Thus in New York State the mortality from diphtheria from 1888 to 1895 was 50.19 per 1000 deaths from all causes, while from 1895 to 1901 the rate was reduced to 29.57.

2 A demonstration of the presence of bacteria in the air may be made by the use of the ordinary gelatin plate cultures. The teacher may then explain that while ordinary air bacteria are harmless, yet it has been shown that certain disease germs are carried by currents of air. Experiments, similar to the one just made, of exposing culture mediums to the air of hospitals where

there were patients suffering from consumption of the lungs, or some other form of tuberculosis disease, have shown that the specific bacteria causing this disease are capable of being distributed through the air.

3 A slide demonstration of the bacillus of tuberculosis may then be made. Through a physician sputum from a tuberculous patient may be obtained and a mount prepared. This involves the staining of the bacilli, but this is not specially difficult. A slide prepared by the teacher affords a much more effective demonstration than the use of a ready-made slide obtained from a dealer, though the latter may be employed where the difficulties of making a slide seem too great.

It should then be pointed out that the wide prevalence of the disease, causing as it does 10% of the deaths that take place each year in the State of New York, is due, to a large extent, to the distribution of bacilli derived from the sputum of persons having the disease. The bacilli are not killed by the drying up of the ejected sputum, but in the dry state or in the form of spores remain alive a long time and are readily caught up and distributed by currents of air. Thousands of people die every year through inhaling particles of dried sputum in which the living tubercle bacilli are present. How important then that the ejections from the lungs of tuberculous patients should be destroyed by burning. The point should be enforced that tuberculosis, while now a disease the most destructive of human life, is yet one which to a large extent is preventable and that it is possible that, if the means of preventing it now known to science were everywhere put into practice, the disease would eventually be exterminated.

4 The presence of bacteria on the skin of the hands can readily and prettily be demonstrated by the use of potato cultures. Two slices of sterilized potato are placed in glass dishes with covers. Just before putting on the covers the finger is rubbed over one of the pieces. In a few days a luxuriant growth of bacteria will have formed where the finger was in contact with the potato.

This serves to show how diseases may be communicated by contagion, in the sense of contact. It should be explained that in all eruptive diseases, as measles, scarlet fever and smallpox, the disease germs exude from the pustules or inflamed blotches of the skin and so can be transferred to another person through touch or be transported on clothing. The importance of quarantine may then again be pointed out and attention drawn to the fact that under present day quarantine methods the diseases just mentioned are held in check, no longer running through whole communities as scourges, or plagues, as was the case in former times. Mention may be made, too, of the importance of disinfection, and some account may be given of the ordinary disinfecting agents.

5 The attention of the pupils may be called to the fact that when the skin of fruits, like apples and grapes, is broken putrefaction sets in. This putrefaction is due to yeasts and bacteria of the harmless kind, so far as man is concerned. But just as the skin of fruits serves to protect the juicy pulp from the invasion of outside germs harmful to them, so the skin of our bodies protects us from the entrance into the blood and tissues of certain harmful bacteria. When the skin is cut or broken by a bruise, bacteria are almost sure to find admission. Most of these cause only inflammation of the wound, but there are a few kinds that produce more serious effects. One of these is that causing the disease of tetanus or lockjaw. This germ lives in soils and hence the danger of getting dirt into wounds. Many cases of lockjaw, not a few of them proving fatal, are occasioned every year by the use of the toy pistol. Happily an antitoxin remedy for tetanus is now known, and last year the authorities of the New York State Board of Health made ready a large supply to meet the special demand in connection with Fourth of July casualties.

6 An interesting and instructive laboratory experiment was described in *School Science* of April of this year, and reprinted in the July number of the *Journal of Applied Microscopy*. The work was done in a secondary school laboratory and had as its

object "to determine experimentally the part flies may play in the transmission of bacteria." The apparatus consisted of a box divided into two compartments, in one of which food material infected with a pigment-producing bacterium was placed. As soon as flies were seen to eat of the food or walk over it they were allowed to pass into the second compartment, in which was a glass dish containing a culture medium. Agar-agar was used in the experiment, though gelatin or even potato would answer equally as well. It was found that in a few days the tracks of the flies were marked by colonies of bacteria showing the characteristic pigment color of the species with which the food was inoculated. The experiment was repeated with various modifications. Flies were caught with sterile forceps, washed in liquefied agar-agar, which was then poured into sterile dishes and allowed to solidify. All of the dishes developed colonies, and the conclusion was reached that "flies in nature probably always do carry bacteria with them," and that "it is probable that they can and do carry the germs of any disease that offers them an opportunity to come in contact with infected matter."

A practical lesson to be drawn from these experiments is that the excreta of typhoid fever patients should be disposed of in a way to prevent the possibility of flies and other insects acting as the carriers of the germs of this disease.

The subject of insects in relation to disease being thus brought forward, the teacher may give some account of the part certain species of mosquitos play in causing diseases of malaria and yellow fever. The files of the scientific journals, as well as the book by L. O. Howard, the government entomologist, afford information on this topic. Care should be taken to explain that the malaria-causing mosquitos are not the common species, but particular species which breed in swamps and stagnant waters. The means of preventing malaria are, therefore, the drainage of swampy grounds and the filling up of stagnant pools and ditches.

7 A disease concerning the nature of which, its causes and the means for its prevention, the public stands greatly in need of enlightenment is that of typhoid fever. It may be taken as

thoroughly established that the usual cause of this disease is the drinking of impure water. This statement may be narrowed and made more explicit by saying that the usual cause of typhoid fever is the drinking of water that has sewage in any form or quantity mixed with it. Any stream, well, or spring which is open to access of excreta, directly or indirectly, may contain the infection of typhoid fever.

An experiment which affords a good basis on which to give instruction in regard to this disease is the simple one of making two gelatin plate cultures, one of water known to be uncontaminated, as that of a country spring, or the filtered water of a city water plant; the other of water from a sewage-polluted stream, as any river on whose banks cities are located. The contrast in respect to the number and varieties of the colonies developing will be very marked. The teacher may then explain that water is the natural home of many kinds of bacteria; that just as all ordinary streams and ponds contain various forms of animal and plant life, so likewise bacteria and many other microscopic organisms live in water. In general these do no harm to man; it is probable that unpolluted natural waters, like the mountain streams which are the head waters of rivers, are quite fit for human use. But just as soon as natural waters are rendered unnatural, that is just as soon as pollution in the form of wastes from factories located on their banks, or, worst of all, sewage discharged into them from cities or villages, or even single houses, situated on their banks, they become dangerous for use for drinking. It has been found out that certain bacteria are capable of living in two phases of existence. In one of these phases they are parasites living in the alimentary canal and in certain other organs of the human body and causing disease. In the other phase of their existence they live in water. Typhoid fever is one of the diseases which are due to bacteria which exhibit this dual mode of life. They are always present in the discharges from the intestines of persons sick with the disease; the discharges being sewered into streams, the bacteria then enter upon the alternating saprophytic phase of their life history. They are capable of living in water a long time. The evidences are that they are constantly present in sewage-polluted waters. If such waters are used for drinking the bacteria may again pass into the parasitic stage, causing the disease of typhoid fever.

The lesson is that the only waters that are fit to drink are natural waters from sources where access of human wastes is impossible, or waters from which impurities have been removed by the means devised by sanitary engineers, such as filtration-plants. Most of our cities have provided themselves with pure water supplies; it is rather in smaller communities, where there is no system of disposal of sewage, and where well waters, located near vaults, are used for drinking, that this disease breaks out. Sometimes it takes on the form of an epidemic; in every recent instance of epidemic typhoid fever the cause has been found to be an impure water supply.

What has now been said is enough, it is believed, to indicate the method by which instruction in sanitary science, in its recent important developments, can be given in connection with the courses in biology in the secondary schools. Of course there are difficulties to be overcome—lack of equipment, pressure of other work, etc.—but they are only the difficulties which always have to be overcome when a new line of work is taken up, and science teachers have achieved too many victories to doubt that success will await upon any new efforts.

Dr Frederick W. Smith—Biologic research is doubtless largely responsible for our modern scientific attainments pertaining to hygiene and sanitation as well as much of our recent progress in preventive medicine. It is but natural or reasonable that the study of the structure, development, and function of life should teach us something regarding the preservation of life.

To what extent should sanitary science be the subject of instruction

There is certainly great need for a more general knowledge in matters pertaining to hygiene. The practical application of hygienic measures or the satisfactory enforcement of sanitary laws can not be successfully accomplished in advance of public opinion. Public opinion is largely the exponent of public knowledge. The first duty then of the sanitarian is to instruct the public. Public instruction must be primarily through the medium of the institutions of learning. Up to the present time instruction in sanitary matters has been largely through the medium of physicians, medical journals and sanitary societies. The general public has yet little knowledge or appreciation of sanitary or hygienic requirements. It has been and is still most difficult to secure proper legislative enactment on sanitary matters. Legislators and those in authority still seem to consider sanitarians visionary doctrinaires and their recommendations as impractical fads unworthy their serious consideration and thus it is plain that it is not alone the poor and ignorant that are in need of sanitary training or instruction.

The extent to which advanced sanitary science should be taught depends on circumstances or rather the capacity or positions of the student or the position he or she is to occupy in life. Thus I believe the fundamental principles of hygiene and elementary physiology should form a part of elementary education. In the high school some instruction should be given in chemistry, bacteriology, personal house hygiene and general sanitation; in the university advanced bacteriology, chemistry, chemistry of foods and general sanitation. Instruction in hygiene should be begun in the kindergarten, and continued through all the higher courses of study.

Teaching of hygiene and granting of diploma of doctor in public health

There has recently been considerable agitation of the matter of the teaching of hygiene and granting of diploma of doctor of public health. I am not quite satisfied as to the practicability of this measure. To cover the entire field of sanitary work requires a very wide range of study, in fact, so large is the field and so complex are the various problems involved that it seems necessary to specialize in the higher education and practical treatment of the various departments of sanitary science. Then in the organization for sanitary work are we not likely to proceed with more advantage and with better prospects for success and advancement by specializing in the different lines of work? Specializing certainly favors concentration of thought, individual research, and progress, and thus contra indicates the attempt to combine all knowledge or its practical application in one individual. The work of a health officer of a city makes it necessary that he should be a physician that he may diagnose and differentiate the various infectious diseases. The health department also requires the services of a competent chemist for the analysis of water, drugs, milk and other foods but he need not be a physician. Every city needs the services of a competent, practical bacteriologist but he need not be a chemist for he will find all the work he can do in his own department. The health department needs the services of a veterinarian to look after infectious diseases in domestic animals, examine cattle furnishing the milk supply, the sanitary condition of dairy stables, the food and water supply of cattle, the inspection of abattoirs, butcher shops etc. Sanitary inspectors are required who, while they do not need the technical knowledge of a physician, bacteriologist or chemist, must have special knowledge or training fitting them for their work. There are many sanitary problems in drainage, that require the services of an engineer. Every sanitarian or specialist in hygienic work must have a well grounded general knowledge of chemistry, bacteriology and general hygiene. Just how much of hygiene should be taught in the kindergarten, grammar school, high school, university, agricultural, veterinary or medical school I am not quite prepared to say but unquestionably a stated curriculum should be devised, authorized and required which should be applicable or adapted to the various grades of study, or positions students may be expected to fill in after life. Hygiene should certainly be taught in all institutions of learning for every individual needs a considerable knowledge of the principles of hygiene and general sanitation that he may be able to at least protect his own life under adverse sanitary conditions.

In connection with the course in architecture something in sanitary engineering should be required. The sanitary expert engineer must have the same general knowledge of chemistry and bacteriology that should be required of the medical health officer but he does not require the special instruction in preventive medicine and infectious diseases.

The first essential of well being or well doing at any period of life is good health. At the same time it is a fact that but few people enjoy perfect health, notwithstanding, that nearly all diseases are preventable. To cure disease and correct disease tendencies is the specific duty of the physician. To instruct healthy people how to keep well should be the duty of all teachers. It is obvious that in education rather than in compulsory legislation lie our most potent factors for preventing disease and maintaining good health. Still will intelligent people continue their indifference to hygienic laws and requirements and to violate the laws of nature and sacrifice health and even life itself for petty ambitions and greed for gain. For the protection of health and the prolongation of life, personal hygiene in its various phases is of no less importance than general sanitation. Personal hygiene is applicable to all individuals and to all positions or vocations of everyday life. The practical and comprehensive application of personal hygiene implies simply, correct living and right doing and is of quite as much importance to the moral, as to the physical side of life. While there have been great advances in the practical application of hygiene in recent times, I can see in the future still greater possibilities in its influence on posterity, in the prevention of degeneracy, crime, and unfavorable heredity as well as in the further prolongation of human life.

George H. Hudson—I believe that in many if not all schools the period devoted to physical exercise is one unthinkingly devoted to the spread of tuberculosis. A test of the air made during, or just after exercise, shows a very marked increase in the number of dust particles and bacteria. With the present percentage of cases, every class is likely to have one or more infected members, and till they are taught what it means to keep the clothing free from the tubercle bacilli, they will most certainly add dust containing these bacilli to the air of the room. Large, well ventilated, and clean rooms, and special suits which could be hung in a small compartment and treated with steam once or twice a week, would cut the danger down to a minimum. The time is coming when the school, and after it the home, will delight in the cleanliness of a well regulated hospital, but the time may yet be far distant.

Section C. EARTH SCIENCE

HOME GEOGRAPHY. ITS PLACE AND PURPOSE IN GEOGRAPHY TEACHING

BY COMMISSIONER H. IRVING PRATT, OSWEGO COUNTY

There are several definitions of home geography. For this reason, it seems well at the outset to define it from my point of view. The study of the origin and development of one's physical environment and its relation to life is home geography.

The question, what constitutes one's physical environment naturally arises. The answer depends on who that one is, whether he be the child, youth or adult, for a person's environment has a greater meaning with his experience. The child sees the things in his immediate environment as far as they administer to his enjoyment, as the brook, valley, meadow, hill, pond, farm, store and mill. The youth sees all these and more, for he begins to see relations between his physical needs and the earth forces which wholly or in part supply his needs; also how those forces are modified by climate, erosion, etc. The adult perceives how the various sciences are related to the different industries, how the different industries and the various means of transportation and communication are related to commerce, and how commerce leads to a world-wide exchange of ideas as well as commodities.

The day has gone by when in our best schools we found geography taught on the old basis; when mechanic memory played such an important part. Many of you recall the time when the child learned "A body of land entirely surrounded by water is an island," without seeing the island; when the child learned to bound every town in the county and every county in the state as mere facts.

I inspected a school not long since where the teacher had a five year old girl name the northern, eastern, and southern tiers of counties of this state for my benefit. It was seemingly a prodigous feat, but what was the benefit to the child? Could not the girl's time have been spent to better advantage under proper teaching?

On its new basis, the life element is emphasized in geography work. Relations between life and earth are constantly shown. Professor Farnham says, "Any geography lesson is incomplete unless it has some phase of the life element in it. Relations should be shown between life and earth."

The place of home geography first of all, is found among the first lessons taught the child. Ritter says, " The very first step in a knowledge of geography is to know thoroughly the district where we live." Then, the first place of home geography is found in the study of that part of the earth's surface lying just at our doors.

Almost everywhere are the store, where something concerning trade may be learned, the mill from which the child may learn how the different grains are ground into flour, and the stream from which he may learn the uses of water. Almost at our doors are the hill, brook, pond, etc. The hill that the child climbs and coasts on, by an appeal to his imagination, may be made to represent some lofty peak. The brook that flows through his father's farm or the little stream formed by the sudden shower may speak to him of the Mississippi, or some other large river. Similarly the idea of sea or ocean may be deduced from that of pond or lake.

The child's great physical needs are already known to him. Many of them are supplied from his physical environment. Let us then consider them—need of food, need of clothing and need of shelter.

Every child eats three meals a day, not to mention between meals. One of the commonest of his foods is bread. By following bread through successive steps back to the soil, he learns many things. Some of which are as follows:

1 His parents possibly buy bread from the baker

2 The baker buys flour from the merchant and makes bread to sell

3 The merchant buys flour from the miller

4 The miller buys wheat from the farmer to grind into flour

5 The farmer grows the wheat in his field

In connection with the above, lessons of an elementary character can be taught about home industries. I have selected three common ones, farming, storekeeping and milling. Much valuable material of special interest to children can be found in studying these industries. What I shall give will be merely suggestive.

1 Farming

a The farmer raises cows, swine, sheep and other domestic animals, and grows grains and vegetables

b The farmer's needs are: food for himself and his animals; a house for himself and a place of shelter (barn) for his animals at night and during cold weather

c Growing of plants to feed himself and cattle

d The earth conditions which favor the growing of plants are, (1) gentle slope for drainage and ease of cultivation, (2) fine, moist, rich soil to supply food for plants and (3) sufficient light and heat from the sun

e The preparation of the soil for growing useful plants

f Sowing the seed and caring for the plants

g Cutting the hay and corn, harvesting the grains and gathering the fruits

h Taking the farm produce to market

2 Storekeeping

a Use: to sell what a person needs and buy the farmer's produce

b Kinds of goods bought at the store: sugar, flour, tea, coffee, clothes, etc.

c Money, eggs, butter, wood and work are paid for the goods

3 Milling

a Use: to grind different grains into flour

b The grinding is done by great rollers or stones c Water is usually the power that turns the great wheel. Because of this, the mill is generally built on the bank of a stream

d Uses of water to different forms of life.

(1) Man: (a) turns the great water wheel; (b) place for fishing, bathing, boating and skating; (c) place where ice is procured

(2) Animal: (a) to drink; (b) for some, to bathe in; (c) for some, a home; (d) place to get food in or from

(3) Plant: (a) need it for life

In considering our next great physical need—need of clothing, we find several points of contact. Take for example clothing made from wool. While studying farming, take the raising of sheep; storekeeping, the buying of cloth or clothes and milling the making of wool into cloth.

The point of contact depends on the child's environment. If he lives in a farming community, the raising of sheep would be best; if in a milling district, the making of wool into cloth, and if in a business center, the buying of woolen cloth or clothes.

I shall select as the point of contact the raising of sheep, as I live in a farming section. The children know the sheep by sight. Many of them are familiar, to some degree, with its food, habits, characteristics, and uses to man. The teacher should take note and make use of these facts.

Though the different stages—washing and shearing the sheep, picking, greasing, carding and spinning the wool and weaving the threads—that the wool goes through to make cloth are not in the province of geography, they could be taught as lessons in nature study. Lessons on spinning and weaving wool by our grandmothers would be very interesting and instructive. The teacher, if possible, would have an old-fashioned spinning wheel at hand and take the children to see the loom used for weaving cloth years ago. The looms of this kind in use are not numerous, but the idea can be gotten from the carpet loom or from pictures of it. These observations of primitive apparatus are a good starting point to teach the wonderful advance made in the last 50 years in the machinery used in the manufacture of cloth.

In teaching our last great physical need—need of shelter, we may take either the buildings on the farm found in our work on farming, the store in the mercantile lessons or the mill in the milling lessons as a point of contact. As previously, the point of contact depends on the place of the child's home. Probably one of the buildings on the farm, preferably the house, is best.

The uses of the house, the lumber from which the house is made, the common trees from which lumber is sawed, places from which the lumber comes and how it reaches us, and the houses of the Indian, Eskimo, and Bedouin of the desert, are suggestive of what can be learned in teaching the need of shelter.

This brings us to the second place of home geography in geography teaching which is found in the preparation for the study of earth forms outside of the learner's horizon. This means that home geography has a place in all geography teaching, in the grammar and high school as well as in the primary grades. All geography must begin at home. All geography can not be studied in the grades, hence all home geography can not be studied in the grades. Ritter says, " Wherever our home is, there lie all the materials which we need for the study of the entire globe." Wherever we are there are the great earth elements: atmosphere, land and water. There is also plant, animal and human life; also day and night and change of seasons. On these great geographic elements are based all the details of geography teaching whatever the grade of subject-matter or intellectual attainment of the learner. Hence, to again quote Ritter, " Wherever our home is, there lie all the materials which we need for the study of the entire globe."

It is evident then that whatever geographic form is studied in any grade, we must find the preparation for that study within the child's experience, hence in the geography of his home. Let the subject of study be the great ice invasion of the glacial period of our present geologic era. Evidences of this invasion may be found in nearly every school district of the Empire State. The hills of the district are kames or drumlins, morainic deposits of the continental glacier. Not far from every school may be found a stream which in the ice age was turned out of its course and in its new course falls over a cliff or precipice producing a waterfall. In many a near-by field, may be found few or many large, rounded and much worn rocks unlike any rocks in the vicinity. These are boulders or "erratics" which were borne to their present resting places by the great ice sheet. Grooves and scratches may be found in the bed rock in many places where the country rock is exposed. These are always parallel and extend in the same general directions. Among the loose rock are often found pebbles with striae. The striae of the pebbles and the groovings in the country rock and boulders all point to a common cause. These phenomena as well as the soil of nearly every locality make up the preparation for the study of one of the greatest events in the world's history—an event which is of great interest to the student of geography, no less than it is to the student of geology. For example, has not the manufacturing industry been a large factor in the making of New England? Is not this manufacturing industry dependent upon the unexcelled water power found almost everywhere in New England? And is not the water power due to the work of the great ice invasion?

In conclusion, the purpose of home geography is to lay the foundation for all geography work and help one to have an understanding and consequently an appreciation of the origin and development of earth forms and their relation to and influence on life. The work in home geography forms a basis for all geography work. The study of the hill is a basis for the study of the mountain, the brook for the river, and the study of earth conditions and life during the different seasons of the temperate zone, for earth conditions and life in the torrid and frigid zones.

To illustrate, take the study of the earth form, a river, beginning with a drop of rain falling from the clouds, trace it till it becomes a part of the river and then the sea, note its relation to and influence on life. This gives one an understanding of the great earth form and consequently an appreciation of it.

LABORATORY WORK IN PHYSICAL GEOGRAPHY

BY ALBERT PERRY BRIGHAM, COLGATE UNIVERSITY

[Abstract]

It is to be understood that field work is an essential part of the practical exercises in this subject. The proportion of indoor and out-of-door work will depend on local conditions, such as climate, available localities, general equipment, and the organization of the school program.

There will always be difficulties in field work, but they will lessen as time goes on. Prejudice against the usefulness or practicability of such work may still exist, but not with disturbing frequency. Double periods, half days and whole days are needed, and in some cases school authorities will have to be convinced that they should afford the needed time. Transportation is usually possible by street car and suburban service, at small expense, and in rural localities the excursions can be made on foot.

The teacher's inexperience in beginning the work, need not give apprehension. The progressive teacher will learn the art of directing field work, by doing it. Almost any excursion will bring a wealth of principle before the teacher and class. The new teacher should go beforehand, and decide on the main points of instruction, and then do the best he can by combined exposition and questioning. The student should take notes, embodying these in a written report, and the excursion should be reviewed in class. The second and third and later trips will develop many comparisons with previously seen phenomena, and general principles will be unfolded by an inductive process.

Perfect correlation with the order of subjects in the classroom will rarely be possible, and it is better to teach all that is within reach on any excursion, as for example, the work of a stream, and any conspicuous traces of glaciation, or effective illustrations of weathering. The teacher need not be afraid of the spirit of the naturalist.

When we enter the schoolhouse, and propose to supplement the textbook with concrete work, the first need is a room, of good size and well lighted. The school desk will not hold the material.

Any good laboratory table, with individual drawers, is the thing needed, and there should be plenty of room for map racks, and trays of specimens. If the whole room is not available, one side of the recitation room, if not occupied with desks and spacious enough for two or three tables, will be useful.

The double period is very desirable, but single periods are better than none, as are even 20 minute exercises in connection with the recitation. The materials of study are all important. Since much of the geographer's material can not be brought into the laboratory, we must depend mainly on representations, such as maps, pictures, and models. Fortunately maps are cheap and of high teaching value. Abundant directions for securing these have been given by several writers. So, too, a few rocks and minerals are inexpensive and can be had by any teacher who tries to have them. And in meteorology much can be done with thermometers, barometers, and weather maps. Laboratories are not yet numerous in our subject, but they are increasing in number and models are not hard to find. A visit to a well equipped laboratory in a high school or college will be useful to teachers having such work in prospect. The work once well begun will insure its own extension and can now be done to some purpose, not only for its educational value to all, but because it can now often be offered, in entrance to college. The College Entrance Examination Board will, for the third time, set an examination in the subject in 1904. In this, 40% of the count depends on the laboratory notebook.

THE PLACE OF COMMERCIAL GEOGRAPHY

BY JACQUES W. REDWAY F.R.G.S. MT VERNON

[Abstract]

In the systematic course of study in geography we have come to accept the fact that human history is very largely a quantitative statement of climate and topography. The influences of geographic environment so strongly tincture political history that a knowledge of the former is absolutely essential to the interpretation of the latter.

We are not quite ready, perhaps, to admit that, in the past few hundred years, commerce has been the point of view in most of the great movements that go on record as human history, yet a brief inspection of any one of them will disclose the fact that commerce was the initial motive. The discovery of an all water route between Europe and India is an example. The blockade of the trade routes over which commerce had passed for the preceding centuries led to a search for a route that the Turks could not disturb, and the result was the voyage of Vasco da Gama. The readjustment following the utilization of this route was world-wide. It drew the trade away from Venice and Genoa and landed it at the shores of the North and the Baltic seas. The concentration of commerce in this new field encountered opposition from the feudal lords for a time, but when the smoke of contest had cleared away, there was no feudal system. The new empires were founded on commerce and the divine right of the king was a forgotten fetish in western Europe.

The discovery of the American continent was another result, though incidental, of the blockade of the trade routes between Europe and India and we are today witnessing the readjustment of the whole world because of the demands of American commerce. Each war in which the United States has been engaged has had a commercial basis. The War of the Revolution gave us the political independence that made commercial development possible and, indeed, political revolution is almost always an answer to the demand of commercial evolution. The War of 1812 gave us commercial independence. The great Civil War resulted from the restrictions on commercial development namely, the commerce of cotton. Incidentally the invention of the steam engine followed by that of the cotton gin transferred the cotton-growing industry from Hindustan to the United States and made the latter the world's chief source of the cotton fiber.

The commerce of foodstuffs between the Mississippi valley and the Atlantic seaboard brought about the evolution of the railway. The great tax on the railway, to which the crops were delivered for transportation faster than they could be readily carried, demanded the abandonment of the wrought iron rail and led to the discovery of the Bessemer steel process and the steel rail. To correct the defects of the iron rail was the only end that the railway manager sought. He did not dream that the steel rail was to span the continent within a very few years and again revolutionize the world's commerce, but this was to be the result. Bessemer steel played a greater part in the unification of Germany than even the army of Louis Napoleon at Sedan. A similar result and one quite as far-reaching followed the building of the Northern Pacific and Great Northern Railways. These lines were constructed in order to develop certain possibilities of trade between the Atlantic seaboard and the states of the Pacific coast. When, however, these lines were thoroughly organized there unexpectedly resulted a new trade route that is drawing traffic away from the Suez canal and landing it at Asian shores by way of the ports of Puget sound.

Only a few years ago the demand for sugar increased so greatly that the supply began to fall short of the demand, and in order to meet the demand the sugar contained in the common beet was brought into requisition. It was found, moreover, that the sandy plain on the south of the Baltic sea was the place most favorable for the growth of the sugar beet; indeed, no better place in the world exists. In 1900, two thirds of the world's output of sugar came from the sugar beet, having been produced at a cost of about 2½c a pound, or $50 a ton. In the tropics the yield of cane sugar an acre is about double that of beet sugar and it is produced at a cost of about $45 a ton. The difference is offset in part by the fact that raw cane sugar must pay transportation a long distance to the place where it is consumed, and in part by the government bounties paid on the beet product.

Because of the bounty thus paid both the economic and the political effects of beet sugar manufacture have been very far-reaching. In Germany there occurred a reorganization of agricultural industries that involved a very large part of the empire. The uncertain profits of cereal crops and sheep grazing gave place to the sure profits of beet sugar-growing, and thousands on thousands of acres of cultivable land were turned from the former to the latter. Even the Netherlands, the home of the cane sugar industry profited by it. The income of the Germans was enormously increased by the venture.

In the case of Spain the result was disastrous. The price of cane sugar in Cuba and the Philippine islands fell to such a low point that the islands could not pay the taxes imposed by the mother country. Instead of lowering the taxes and adjusting affairs to the changed conditions, the Spaniards, by their oppressive management drove the islands into the rebellion that finally provoked the interference of the United States and resulted in the war by which Spain lost her colonies.

The foregoing illustrations are neither strongly drawn nor far-fetched. They represent a fact that is not often sufficiently emphasized—namely, that no people can live wholly within the political boundaries that on the colored map mark them as separate and distinct from another people. From an economic standpoint few such boundaries exist. Civilized man draws on all the rest of the world—not alone for the luxuries but for the necessities of life—and gives to all the rest of the world in turn; moreover, he is civilized because of this interchange and not in spite of it. Now this interchange of commodities constitutes the science of commerce. Commerce must move along lines of least resistance, that is along lines of the most favorable topography; the commodities themselves, as a rule, must exist between lines of temperature, soil and rainfall. And day by day the world is becoming relatively so small that the disturbance in the movement of a product in one part of the civilized world is invariably followed by a readjustment to the changed conditions in all other parts.

Tuesday morning, Dec. 29

SECTION MEETINGS

Section A. PHYSICS AND CHEMISTRY

PHYSICS, LABORATORY AND MACHINE SHOP EXHIBIT[1]

BY PROF. O. C. KENYON, SYRACUSE HIGH SCHOOL

In the first place, I wish to say, that owing to our regular school work, we have not had sufficient time to arrange all of the apparatus as we wished it to be, nor to include all of the experiments that we should otherwise have been glad to show.

As it is, however, we have prepared the apparatus for about 90 laboratory experiments, 50 or more of which have been performed during the hour by our pupils; and in the machine shop we have shown about 25 operations, useful in making and repairing apparatus. My aim has been to show by the exhibit, or to learn by discussion, the best apparatus and the best method for each experiment. We sincerely hope that you will find all the fault you can with our equipment and work, because in that way we shall all be most benefited.

I will begin the criticism myself by saying that our notebook is too small (6x9 in.). With it pupils are inclined to crowd their notes into too small a space. Next year, we shall use a larger size.

You probably noticed the lack of fixed table supports. The brass plates and rods which are being made in the shop are expected to help supply our need in this direction. Personally, I do not like the heavy timbers seen above some laboratory tables.

I will now speak of a few experiments in which we think we have made improvements.

First, concerning steam. Our supply is directly from the boiler in the basement, so that we always have steam at any desired pressure, besides distilled water at any temperature. Wishing to use this steam for individual work, I connected to a steam outlet an old gas pipe having several stopcocks. At first, the amount of water that entered the calorimeter trap caused trouble, but on making an exit for this water through the bottom of the trap, by means of a rubber tube and pinchcock, I found the problem solved. The apparatus required for heat experiments is thus much simplified, apparatus A and the bunsen burner being dispensed with.

---

[1] These notes were written a few days before the meeting of the association, in response to a request from the secretary that some account of our laboratory exhibit be prepared by me for publication in this report.

The steam pipe can easily be extended about the room, and steam be supplied to each pupil, just as gas, water and electricity are now furnished to each.

In experiments with photometers, lenses, and concave mirrors, we find incandescent lamps much superior to the kerosene lamps we formerly used.

A power dynamo, of low but constant E. M. F., for laboratory work is convenient and reliable, saving much time and annoyance with batteries. Our dynamo for this purpose is of 20 volts E. M. F., and 20 amperes current.

After trying many plans with Atwood's machine, I have a method that works well with even a cheap form of the apparatus. The trouble with this experiment, and with the use of the inclined plane for the same purpose, has been that we have expected too much from them, or rather from the young experimenters who have tried to do the experiments. Without electrical contact between the pendulum and the falling body at the end of each time unit, the pupil can not accurately enough measure the required distances. But the experiment is valuable, almost essential, for making clear the meaning of the terms acceleration, velocity at an instant, average velocity and distance in a particular unit. A class experiment does not take its place.

My plan is this: first balance the resistance due to friction by means of a piece of wire placed on the side which is going down, so that, after starting the weights without any rider, the velocity is uniform. Then obtain, yourself, the distances through which the rider carries the weights in one, two, three, and four units of time respectively, and also the distances passed over in the second, third and fourth units, respectively, the rider having been caught off at the beginning of the units named, in turn. These values are given to the pupil, and he is asked to verify them, to show their relation to the terms used in accelerated motion, from them to obtain the values of the other terms used (no formulas being used), and finally to illustrate by the values thus found the formulas for motion, momentum, force and energy; each term used being meanwhile carefully explained or defined, and the proper unit for each quantity being also named.

While this experiment differs from all of our other experiments, in that the pupil is not required to make independent measurements, it is nevertheless valuable in clearing the pupil's mind, and is by no means too easy.

I will close with two thoughts as to the general character of laboratory work.

1 The best apparatus is none too good. The beginner in science should be given tools that, if carefully used, will give accurate results. For example, does anybody think that the vernier caliper is not a better instrument to give to pupils for obtaining the diameter of a sphere than the two blocks and rule so commonly used?

2 Of two experiments, is not the one giving the more accurate result to be chosen, even when it is less direct and simple in its method than the other? To illustrate: the common method of obtaining the velocity of sound out of doors by striking a bell or something similar, though more direct and simple than the resonator method, is much less accurate, and may be carelessly done without detection. Of the two methods then, is not the one making use of the resonator the more valuable? I would like the opinion of some college men on this point.

NEW APPARATUS FOR ILLUSTRATING COLOR PHENOMENA

BY PROF. ERNEST R. VON NARDROFF, ERASMUS HALL HIGH SCHOOL, BROOKLYN

With the ordinary method of combining colors by means of rotating paper disks, the luminosity of the combination is only an average of the luminosities of the components, instead of being their sum. This is often very inconvenient. Thus in trying to show that the three primaries, red, green, and violet blue, make white we can only show a dull gray; or again, instead of getting a clear yellow by adding red to green we only get a mean yellow brown. The effects, it is true, are somewhat improved by the use of rotating glass disks projected on the screen, but we are in that case limited by the difficulty in varying the relative proportion of the component hues. It was to remedy these defects of the older experiments that the newer ones were planned.

This apparatus, which was constructed by our instrument maker, Mr F. W. Huntington, when placed before an ordinary lantern converts it into a triple lantern. And it does this in such a way as to allow the three beams to be colored by means of glass slips, to be moved about on the screen independently of each other, and, what is of prime importance, to be separately diaphragmed down with a uniform intensity.

I will now take the apparatus back to the lantern and show a few experiments with it. I remove the focusing lense of the lantern, and also the frónt lens of its condenser, thus getting a parallel beam. In this I place the apparatus. Then on the screen you see three similar disks of white light. Making these disks overlap in triangular fashion we see intensities that are in the ratio of one, two and three. Drawing the disks apart I color them with these special glasses, red, green, and violet blue. Notice how saturated the colors seem. We must now secure a perfect overlapping of these disks. There is no difficulty in getting the first two, red and green, exactly to overlap, but in swinging over the blue you notice it passes a little to one side. A second adjustment has been arranged to control this matter. There, with a slight turn of this screw we have secured an absolutely perfect overlap of the three hues. But the resulting hue? It is not a pure white though of high luminosity; it is distinctly greenish. The green beam is too powerful. Slowly contracting the diaphragm of the green beam the white is much improved, and a touch at the red makes it perfect. That looks like a patch of ordinary white light on the screen, but you can see its peculiar composite nature by looking back at the apparatus itself. See these colored beams marking their paths through the dust of the room. Or again, placing my hand several feet in front, see the strangely colored shadow on the screen. It is no mean mental exercise for a pupil to explain each of the six hues besides black and white that we see.

But now to fundamentals. I will now slightly separate our three beams from each other. I see that the white center of the triangular figure is no longer a perfect white. The lantern light may have changed slightly, but with a judicious touch at the diaphragms we are all right again. Besides the white, the figure presents us with the mixture of our primaries in pairs, the so called secondary hues, purple, bluish green, and yellow. Let us study one of these secondaries more clearly, choosing the yellow. Notice how brilliant it is. I have now closed all the diaphragms except the green. Slowly turning on a little red, we observe that the overlap appears a yellowish green. With more red we get a lemon yellow and then a full yellow. Further to increase the proportion of red I next turn down the green and as a result the yellow passes through an orange yellow, a full orange, and thence on to red. Similar experiments may be tried with the other secondaries, but let us pass on to the subject of complementary hues.

There on the screen is a yellow at the overlap of the red and green, and off at one side is the blue. Shifting the blue over the yellow we get a white, and so conclude that yellow and blue are complementary hues. In the same way we see that red and bluish green are complements, and so are green and purple. In each case the white produced is seen to involve the three primaries, red, green, and blue.

The question as to the distinction between mixing colored lights and mixing pigments may be very easily illustrated with our apparatus. I color one of the beams with this film of yellow gelatin and shift it so as to overlap the blue. With a little adjustment of the diaphragms we get a good white without the slightest trace of green. But to make sure of this I turn on a third uncolored beam and bring it nearby. You see we have no difficulty in adjusting its luminosity so as to make a perfect match. We have gotten our white by addition of blue and yellow lights. Now for pigment mixture. Of course it is well understood that the colors of our glasses and gelatins are due to selective absorption, and the same is true of pigments which may be regarded as transparent mediums in a finely divided state. It is also well understood that the unabsorbed light passing through a piece of yellow glass for example is generally complex, representing various portions of the spectrum. What we observe is the mixture of these unabsorbed hues. Now it happens that most yellows and blues transmit a certain amount of green among other hues, and that this green is the only color common to the absorption spectrum of both. I know that to be the case with the yellow gelatin and blue glass we are using. Placing the same two colors then superposed in the same beam, we observe on the screen a dark green as we should have predicted. And so we get from the yellow and blue either a white or a green according as we arrange to add lights or to add absorption. This is the most common result but I may say incidentally that I have in my possession a series of pairs of blue and yellow mediums that by their superposition yield every hue of the spectrum.

To illustrate color contrast I throw on the screen a green beam, and slightly overlapping it I turn on a dull white. The white appears distinctly purplish, or the complement to green. Or again, I project a blue beam, and now the same white appears yellowish.

I see I have reached the limit of my time allottment and so must allow these few illustrations to suffice. Indeed now that you understand the working of the apparatus, you will without further explanation see how tints, browns, and broken tints generally may be obtained, though I ought to say that in many cases it is necessary so to arrange the experiment that the color shall be surrounded by a white of full luminosity to serve as a standard of comparison.

DEMONSTRATION OF RADIUM

BY PROF. WILLIAM C. PECKHAM, ADELPHI COLLEGE, BROOKLYN

The announcement of my subject releases me from any lecture or formal statement even regarding radium, and permits me to proceed immediately to show you what I have to show. The metal uranium[1] has been known for about seven years to be capable of emitting what have been called rays, though these rays differ from what we have formerly called by the same name. The rays of heat and light are undulatory motions, passing through a medium, the rays of radio-active bodies are believed to consist of particles, solid or gaseous, shot out from these bodies. These particles may be as small as the thousandth part of a hydrogen atom, but we give to them space and velocity and can see the effects of their motions. They are projectiles, tiny indeed, but projectiles, bombarding resisting walls and spending their energy against restraining barriers.

Attention was next drawn to pitchblende, an ore of uranium, with the result that new materials, elemental substances they are thought to be, were brought to light. Thus radium was discovered by the Curies of Paris. Here is a bottle of radium which was imported soon after the discovery of the substance. It is of a low power. It will affect a photographic plate. Here is a negative made with it by an exposure of 90 hours. A copper cent and an L of lead have cut off the radiations which have affected the rest of the plate. This sample does not shine sufficiently to be seen in the dark, but it has colored the glass of the bottle in which it has been kept with the decided and characteristic pink tint.

This slide showing the letters A. C., for Adelphi College, was made with letters cut from lead, by an exposure of seven days to the piece of pitchblende which I have shown you. The plate was of course wrapped in black paper to exclude all ordinary light from access to it, and the exposure was made in a completely darkened room, whose walls are painted a deep black. The area of the plate which developed in the photographic bath conforms in shape to the piece of pitchblende, and even disclosed the presence of impurities in the mineral by their insensitiveness, in that these fail to affect the plate and appear as white spots on the glass after development.

---

[1] When any substance was named a sample of it was shown, and when an effect was described that effect was produced by an experiment.

The next mineral is gummite, perhaps a disintegrated pitchblende, found associated with pitchblende. It is radio-active, though I have not had time since I obtained the specimen to make a picture with it.

I shall exhibit the fluorescence of a number of minerals in the rays from the tube of radium; but before doing this I will show the same minerals and their fluorescence in the ultraviolet rays from a Piffard lamp, in order that you may see them in both aspects. The Piffard lamp employs the discharge of an induction coil across a series of gaps between iron balls, four in number. The strange bluish light which is seen is due to the arc produced by the burning of a minute portion of the balls. It is therefore an iron arc at which you are looking, and it is very rich in ultraviolet rays. Here is then the fluorescence of the newly discovered mineral, kuntzite, which requires quite a time to receive the rays, but which then shines brightly for a long while afterwards. These which follow are willemite, pectolite, hyalite, phosphorescent zinc sulfid, the ammonio-oxy-fluorid of uranium, and barium platinocyanid, the substance generally used as a fluorescent screen in Roentgen ray work. I also add two well known substances by way of comparison, though they do not respond to the excitation of the radium tube. They are uranine and quinine, the former in an alkalin solution and the latter dissolved in very dilute hydrochloric acid. In this way very strong solutions may be prepared. The first produces a very strong greenish color, and the latter a very rich blue.

I have here today three preparations of radium. The older tube I have already shown you. In this second tube is a quarter of a gram of very strong radium bromid. It is from the hands of the Curies themselves and is rated by them at 7000. The tube which I have ordered for Adelphi College, not having arrived in season, we are greatly indebted to Messrs Eimer & Amend, the importers of New York city, for the loan of this tube. It was released from the customhouse only on Saturday evening last, and I have not had it long enough to perform many tests with it.

I have also this instrument, the spinthariscope of Sir William Crookes. It is as you see a tube of brass, at the bottom of which is a screen of calcium sulfid, which fluoresces in the B-rays of radium continuously. Above this screen swings a small index, like the hour hand of a watch in shape and size. The instrument is completed by a small lens like a simple microscope, which magnifies the field. The tip of the index has been touched to a solution of radium of 300,000 power. When in deep darkness the eye has been freed from gross light, the play of the scintillations from the screen are simply marvelous. A shower of sparks (σπινθήρ, a spark) are seen like meteors streaming across a midnight sky. These are due to the blows given to the screen by particles shot out from the substance of the radium itself. These are the A-rays, consisting of heavy particles, which strike a blow many times as heavy as can be given by the minute particles of which the B-rays are composed. Each particle is like a small projectile striking its target with such an enormous velocity that it is seen to strike out sparks of fire by its impact. It is to these particles that the heat of radium is supposed to be due, so that it is kept about 5° F. above the air by which it is surrounded. The exhibition of the spinthariscope is of course an individual matter, and can only be enjoyed in its full richness by remaining in a perfectly dark room for some minutes. It is better to keep the eyes closed even in the dark room till the eye is placed before the instrument and the rays admitted directly into the empty orb. Then one sees as it were, "a large globe in which are moving innumerable flashes of fire as objects move in a kaleidoscope."

The tests of radium are principally three in number, the first being the emission of light in the dark. This is very faint and not, as the newspapers have represented it, bright enough to replace the sunlight. The second is the effect upon a photographic plate. The third is the discharge of an electroscope.

The charged gold leaves are now projected on the screen before you. On presenting the tube of radium to the ball of the electroscope, the air in the vicinity is rendered a conductor of electricity and the electricity passes off as is evidenced by the gradual collapse of the gold leaves. You now see them hanging limp side by side.

The ability to emit light may now be seen. Everyone within 10 feet of this tube should see it glow, with a faint light, not so bright as a firefly. Its power to excite fluorescence in other bodies, is seen while I hold the tube behind a screen of barium platinocyanid. This can be easily seen all over the room. So also when the tube is held near the piece of willemite. This is the brightest of all. The interposition of a sheet of metal does not reduce the light very much. My time is exhausted, but not my subject. The examples which I have given you show the nature of the phenomena of this strange substance, and doubtless arouse in our minds speculations which no one at present can answer.

Section B. BIOLOGY

ADVANTAGES OF A YEAR'S COURSE IN BIOLOGY (ZOOLOGY, PHYSIOLOGY, BOTANY)

BY WILLIAM DAYTON MERRELL, UNIVERSITY OF ROCHESTER

This is an age of science. The contributions of applied science to the comfort and elegance of our daily lives have been so vast as almost to defy enumeration. This is a practical age. Hence, with the great advances in the direction of applied science, there has come a demand for a fuller study of pure science, not only because scientific principles must be known in order to be applied, but also for its own sake, as an essential element in a liberal education.

This latter demand was for a long time satisfied by what was known as a "culture course," the idea being that by a series of lectures and assigned readings an instructor could put his eager classical students in touch with the results of scientific research.

It is a just cause for regret that in some quarters of the earth this kind of culture course has not yet become extinct.

A long step in advance was taken when these culture courses were supplemented by practical work on the part of the student himself, the purpose being not so much to store his mind with interesting facts, as it was to lead him, by direct contact with the objects themselves—which are the real facts—to an appreciation of the methods of original scientific work, and of the laborious processes by which the generalizations of science have been reached. It was right here that the supreme opportunity was given to science to demonstrate its unique value as a part of our educational system. Up to this time the average student in science had gained little of real value beyond the smattering of information by which he could make small talk in society, or illustrate his sermons. His knowledge of facts was acquired along the path of least resistance, the memory, resulting in the partial atrophy of other important mental faculties. Now, eye and hand must be trained to do the bidding of the mind. The student must learn to be accurate as an observer, discriminating between the essential and the nonessential, the typical and the abnormal, honest in making his record of observations, candid and logical in the conclusions drawn from these observations.

Of all the sciences which have lent themselves to this method of study in the high school, none is more important than biology, since it stands in such close relation to our own personal welfare. We are the youngest of them all, and yet it is inspiring to glance back over our history, looking at it for the present entirely from the educational point of view. It is interesting, also, to note the closely parallel lines along which our educational ideals have passed in the two coordinate branches of biology—zoology and botany.

Glancing first at zoology, we see how, even within the recollection of many present, the best schools were contented with a method of study which trained only the memory. Systematic zoology, or classification, lent itself readily to this style of treatment, and was almost universally taught. Then, when the insufficiency of illustrative material as viewed from the teacher's desk began to be felt, specimens were handed out to the students—at first for mere external examination, and later for internal study (dissection); and since only a limited number of forms could be studied in this way, we see morphology fairly installed as the subject-matter, and type study as the special laboratory method. At first this was used merely as an aid to the understanding of the broad outlines of classification; but as the teachers found that the students were more interested in a structure when they knew what it was for, more and more attention was paid to function, or physiology. Today, most of our schools are teaching this kind of zoology, and opinion is quite evenly divided as to whether the chief attention should be paid to the study of the structure of a series of animals, or to their life habits. What we might call the "new zoology"—the study of the adaptations of animals to their environment, or ecology—is a natural outgrowth of the increasing attention which has been paid to the study of function.

Turning now to botany, we need not spend much time in telling how long the classification of plants was regarded as the highest goal for the ambition of the investigator, as well as the proper work for the beginner, and a refined and uplifting recreation for amateurs in every walk of life. Indeed, botany remained so long the "gentle science," that even today, in some quarters, it is hardly considered a worthy occupation for men. Further, systematic botany, as taught, was confined to the study of the flowering plants, and when its immediate successor and partial contemporary, structural botany, came into prominence, that also was limited in its application. Imagine a class in zoology beginning its work with the comparative anatomy of vertebrates! A more rational treatment of plant anatomy soon brought it into its proper relations to classification and development, and we reached, at last, a true morphology. Greater attention was now paid to the flowerless plants. The "dirty scums" of the pools were found to consist of objects full of beauty and interest. The bark of the trees, the dirt in our flowerpots and greenhouses, the dripping rocks in our glens, all had their part to contribute to the new-old study. Then the inevitable happened in botany, just as it had in zoology. No teacher can arouse much interest in mere structure, if its function, the reason for its existence, is not understood. It was a professor of Latin in one of our large universities, who, scarcely five years ago, asked a botanist what possible connection there could be between physiology and botany! There is a very real connection between them, and our Latin professor might do well to glance over the rapidly increasing number of excellent textbooks and laboratory guides in plant physiology.

Thus far, if the truth be told, botany was merely following in the footsteps of zoology. But we can now show where botany has at last taken the lead. Kerner's *Natural History of Plants* is an old book, but it is read more and more every year. The work of Haberlandt on the physiologic anatomy of plants, and later that of Warming on ecologic plant geography, have brought into prominence a phase of botanic study so natural that we seem to have known it always, so interesting that we might well be asked why we neglected it so long. The teaching of zoology had long been established on a basis of morphology and physiology, when the work of the botanists stimulated their brethren to an increased attention to the questions of animal ecology. Thus, in the Twentieth Century Series, Jordan's *Animal Life* follows Coulter's *Plant Relations*. Note, also, the increasing interest in the study of the habits of birds and insects.

In physiology, also, there has been an advance, specially when, as will be shown later, it has followed a course in zoology. In former times far too much time must needs be spent in the study of the anatomy of the body, and the writer can remember distinctly the hard work he had to make a poor memory keep such things as the bones of the body and the cranial nerves in proper order. Today, while we are still obliged to know the structure of the body, we are paying more and more attention to the functions of the various organs. This gives us a much better foundation for a rational instruction in hygiene, a condition which we all welcome, even though we may think that the alcoholic appendix is abnormally large!

Then many of us are finding an increasing satisfaction in teaching what is known as cell physiology. Without going at all into details, this is a universal, a general physiology, its data being derived from the study of plant cells as well as those of animals, its conclusions being applicable alike to both. Treated thus, human physiology is but a special phase of a much more general subject. It may be said with safety that this is the highest form of physiology, since it makes it a part of the general science of biology, coordinate with general morphology.

In this hasty sketch, no attempt has been made to point out the specific influences of one science on the other, except in the most casual way. We may now consider some of the influences which each of them has exerted, or may exert, on the others.

The study of zoology has, as we have seen, passed from systematic zoology to morphology and physiology. How does this affect human physiology? First of all, the study of a series of graded types gives the student a knowledge of comparative anatomy, so that when he comes to physiology he need not spend so much time on the anatomy of the body, but can pay more attention to physiology proper—a practical gain of very great importance. Then, too, it gives a chance, by the study of the lower, simpler forms, to learn the essential nature of the fundamental physiologic functions of the body. Nutrition, respiration, irritability, all are seen in the Protozoa, reduced to their lowest terms, separated from all complicated anatomic machinery. Nutrition is the nutrition of the cell; respiration is the respiration of the cell. In the higher animals there is simply a division of labor between the different kinds of cells. Ask a class in physiology the fundamental purpose of respiration, and how often the answer will be, "to purify the blood"! But if that class had been studying the respiration of a graded series of types from Amoeba up, it would see that what the physiologies call internal respiration is the real respiration, the respiration of the cells, and that the question as to whether the gas exchange (external respiration) shall be effected through a moist skin, as in the earthworm, or by gills, as in the crayfish, or by lungs, as in man, is simply one of adaptation to a particular environment, the blood being in all cases a medium of exchange between the outer world and the cells which are in the interior of the body. This is but a single illustration of the importance of a comparative study of the physiology of the types used in zoology.

That zoology has by a good example in times past helped to bring about much needed reforms in the teaching of botany, can not for a moment be doubted. We have already shown how much earlier zoologists adopted methods of teaching which are of standard value today. Botanists have done well to follow their lead. It stands to reason, too, that a well trained zoologist, carrying over to his botany class the results of the careful work and methods used in zoology, will produce equally good results in botany. But it should be emphasized right here, how grievously botany has suffered at the hands of those self-styled "biologists" who are in training and sympathies merely zoologists, and whose knowledge of botany comes from a day or two spent on Protococcus and Spirogyra and a long forgotten course of Gray's *Lessons*. When a trained zoologist carries his methods of work over to the botany, his work will be well done. But teachers of the type just mentioned hurt botany, because they misrepresent it. We botanists ask for no better training in botany than in zoology, but we do ask for just as good.

In speaking of the influence of physiology upon zoology and botany, it is admitted by every live teacher that physiology is to a good course in either zoology or botany very much what the juice is to an orange. With it, there is plenty of life and interest. The trouble with our old style botany courses was that, in our administration of the legacy handed down to us by Professor Gray, we made the mistake of leaving out the physiology. The result was that dried plants were considered nearly as valuable as living ones, and often even more valuable, and we became mere dealers in baled hay!

Then, too, the higher physiology, the physiology of the cell, acts as a valuable check on the teacher, who must be careful to employ terms in describing the physiology of the plant in the same sense in which they were employed with animals. For example, if he has taught the proper meaning of digestion and assimilation in zoology, he will be obliged to stick to his definitions when he comes to botany. After a good course in animal morphology and physiology, a teacher (or a textbook) ought to expect trouble with a bright class if they are told that water and mineral matter and carbon dioxid are "digested" in the leaf. And the trouble ought to be heated seven times hot for those who persist in retaining in any form the word "assimilation" in connection with the process of food manufacture in the green plant. The one defect in what is in other respects an admirable elementary text, is the retention of that misleading word, even going so far as to call it in one place "assimilation proper," with no apology for it beyond the mere use of quotation marks. Again, if respiration has been correctly defined and explained in zoology and physiology, it will be easier to draw the distinction between that process and photosynthesis in green plants; and each process can be better understood if the cell is looked on as the working unit.

In what way has botany helped the other sciences? Certainly, by having its attention called to the advantages of a study of the habits of living things and their special adaptations to their natural environment, zoology has been made more of an outdoor study than it had been for some time past. This is surely a step in the right direction, since it takes the student out into nature's great laboratory, and at the same time teaches him to respect the lower forms of life, by showing him that each animal, likewise each plant, has its own life problems to solve. By studying the animal or plant from the standpoint of its own personal well-being, the student is made less selfish in his attitude toward the world in which he lives.

Then, too, whatever we may say in regard to the subject-matter of the old botany, the painstaking accuracy of the older workers was not without its effects on those working in the other science. The first conception of the cell theory itself came as the result of the study of plant tissues.

We have already pointed out some of the mutual relations between botany and physiology. We may simply add here that we know far more regarding the chemistry of animal digestion as the result of the work of plant physiologists.

It may be thought that most of the considerations presented are more theoretic than practical, but surely they are not without a practical bearing. In studying the practical benefits to be derived from a combined course in zoology, physiology and botany, we can see that some of them will be direct, others indirect. The direct advantages of the combined course in any one year will depend, of course, on the actual order in which the subjects are taken up. If zoology precedes physiology, the study of the comparative anatomy and physiology of the lower forms will aid materially in the intelligent study of human anatomy and physiology. Thus opportunity is given for a careful study of many topics which must otherwise be slighted for mere lack of time. The way in which botany will be benefited by the previous study of zoology and physiology, has already been pointed out.

But the advantages of such a combined course are not at all confined to any one year. Such a course can not be given year after year without exerting a most profound influence on the teacher. If the three subjects are taught as parts of a larger, broader science, as they really are, the teacher will see more and more clearly the many points of contact between them. And as his own horizon expands, he will impart to his students a much broader conception of life in all its varied forms and manifestations: and this is the supreme object which we hold before ourselves in all our educational work.

William L. Fisher—The advantages of a year's continuous course in biology over the present method of teaching the subjects, are so very evident that it seems almost unnecessary to attempt a discussion of the topic. Still, a statement of some of the chief reasons for a change may make us realize more clearly the faults, if any exist, in our present scheme, and the ways in which we may add to our usefulness.

That the biology course, as it is now given in the majority of the schools, is unsatisfactory, will hardly be questioned. Too many of our pupils, and of our fairly well educated people outside the schools, do not even know of what the subject treats. Too many of the teachers in our schools, who are working in other departments, fail to realize the importance or the value of this science, and wonder why it should claim any place in the curriculum. You have probably been asked, as I have been, "What is the good of studying biology? Has it any bread and butter value? If a boy can not earn his living by it what reason is there why we should make him study it in school?" This idea is, of course, passing but that these questions are still asked is a fact that most of us have been made to realize.

Probably all of our schools give a course in physiology, many offer a short course in botany and some give a half year to zoology. Still is it not often true that the physiology is given when the pupils are too young to get more than the most elementary facts of anatomy and hygiene; that the botany class neither attracts nor holds a large number of the pupils; and that the zoology course has no recognizable connection with either of the other two? In one large school of my acquaintance, the only apology for a biology course was a half year of physiology in the second year, and in the sixth, or senior year two weeks of botany for the few boys who were going to Yale.

If we are to substitute for the present method of teaching the three subjects separately, a continuous course, for one year, in biology, we must first be certain that the change will be an improvement. To decide this we must look at the question with reference to the two classes of pupils in our schools: those who go from school to a college or university, and those for whom the high school is the highest school.

For the prospective college student the continuous course will possess the advantage of giving him the three parts of the subject as a connected whole, and in their logical sequence. He will have some idea of the relations existing between the different life forms, and, if the course could precede or follow a similar course in geology, some idea of the life history of the earth. Then, when he enters his college, there will be some foundation for future work in the same lines. The college professors in physics and chemistry, expect to get, and do get their pupils with a fairly good elementary knowledge of the subject, and often with a working knowledge derived from a course of experiments. The biology professor has, too often, to lay the foundation before he can build anything on it. This, of course, takes time and so makes possible less advanced work, and all individual research has to be pushed over into the postgraduate university course.

For this class of pupils, the quickest way to gain the end would be to include biology among the college entrance requirements, or to accept it as a substitute for some other subject.

What then will be the advantage of the biology course for the pupils who go no further than the end of the high school curriculum? They will gain, with the others, the idea of the relation between the three parts of the science. They will get, what many schools now do not give, a chance to study all three subjects instead of only one, or two. The boys will find that botany is not what they call "a girl's study," and that it means much more than simply collecting and pressing a few pretty flowers. The girls will find that even earthworms may be interesting and that there is a difference between a moth and a butterfly.

By far the greatest advantage, however, will come from the giving to our pupils the great and broadening thoughts of the relations of life forms and of life development. We teachers are too familiar with the doctrine of evolution, and the ideas that are associated with it, to remember that the boys in our classes are learning these truths for the first time, and that they may find them hard to understand. We forget till some questioner reminds us that in our teaching we have been going faster and further than our class could follow.

The old popular fear of natural science as heresy, and the idea that the scientist is necessarily an atheist, has, of course, nearly passed. Still enough of it remains to make necessary the recognition of its existence, and to insure a welcome for any change in our schools that shall hasten its complete disappearance. Outside of our university towns and centers of learning, are still to be found preachers who will give to their people a tirade against science teaching in all its forms and methods, and will particularly warn their young people against any belief in the doctrine of evolution, on pain of losing the very foundation principles of the Christian religion. What is still more unfortunate, this kind of preaching is not confined to the old men, but some of our theological seminaries are still sending out young men with these old ideas as a part of their intellectual equipment.

We may say that this is foreign to our subject. That our business is to teach science and not religion or morals. But at the same time we know that our business is not simply to instruct our pupils, but to educate them, and that if we fail to give them all the help that we can toward becoming men and women of the highest, truest type, we are not doing our whole duty as teachers.

If the continuous course in biology is going to give us the chance to present the facts of life and of life development to our classes, in any better and more comprehensible way than is possible under the present system, by all means let us change our methods.

Münsterberg says that the development of natural science, like the development of the church, has passed through alternating periods when they had golden priests working with wooden chalices, and wooden priests with golden chalices. He says that the middle of the last century saw a period of the first kind, when Darwin, Spencer and Huxley were doing such wonderful work, with such poor and meager equipment. But now we are in a period of the other sort, with extensive apparatus and fully equipped laboratories, but unfortunately, too many teachers of the order of the wooden priests. Our intense specialization, and minute subdivision of our subjects, have robbed us of the broader views and expansive thoughts that might come from a more general, if less exhaustive study of the sciences in their larger aspects.

Dr Chamberlin thinks that the time is coming when the specialization that now marks our scientific study will be, in a measure given up; and when our students, instead of being botanists, zoologists, or physiologists, will approach more nearly the type of the older naturalists. If that is the direction in which our education is tending, then the substitution of the biology course for the three subjects taught separately is distinctly a step in advance, and is a mark of the forward movement of our pedagogic methods.

Prof. J. E. Kirkwood—A course in general biology is certainly of great value when properly conducted, but for the best results, I would not stop there. A full year in botany and the same in zoology ought to follow such a course. I find that one half year is quite inadequate for a successful presentation of the subject of botany giving two hours a week to the subject, but I am able to arouse far more interest in that science in another course of three hours a week lasting through the year. The need of more thorough work both in botany and zoology in the many of the secondary schools would be apparent to any one who had occasion to examine many notebooks in these subjects presented for entrance to college.

BIOLOGY AS A CULTURE STUDY

BY PROF. W. M. SMALLWOOD, SYRACUSE UNIVERSITY

No one cares to be regarded as a barbarian. In appearance few people adopt customs or ignore styles to the extent of becoming noticeable. This is the least likely of the barbarisms to be assumed. But there are barbarisms of the mind, some that are assumed, some that are innate. What is a man's attitude of mind not only in regard to the subjects and new discoveries that belong to his realm of thought but also to the new discoveries outside and beyond his special training? In other words does he give evidence of barbarisms in his thinking or does he receive new ideas in a generous manner, placing truth above dogma and giving evidence of a willingness to trust the future?

Culture has to do with the temper of the mind rather than its accumulated information, and of course is associated with those things which are the " noblest and best." "True culture," as one has well said, " consists in bringing people into a certain attitude of mind rather than of informing them of facts." President Eliot in his address before the National Educational Association, states that we may judge of culture by its results. The "best results of real culture ... are ... an open mind, broad sympathies, and respect for all of the diverse achievements of the human intellect at whatever stage of development they may be today—the stage of fresh discovery, bold adventure, or complete conquest." This conception of culture is such that it may be approximated by every one and its foundation is laid in the high schools. Of the subjects pursued there, the sciences, and specially biology, tend to lay the foundation for a mind open to perceive and to interpret facts.

The time is fast passing when the determining factor in culture is based on a study of given subjects; and likewise the time is passing when any one set of subjects has a monopoly in training the mind. We are beginning to recognize that the real value of a subject depends on what it does for the individual; does it stimulate him to do independent thinking, to answer a few of the questions usually expressed by How and Why? Now biology is preeminently fitted to produce just these results, for the student, because he has to answer how and why over and over again in the laboratory, in explaining the similarities and differences that exist between the several organisms that he is investigating. I say investigating, because his work should be so directed that each new organism is individually studied. This implies that the student shall do some work for himself and not identify described parts, or what is worse copy drawings from books and charts and take down dictations from the teacher with the idea that this is doing laboratory work.

Culture stands in sharp contrast with superficial acquirements; it is like the oiling and polishing of wood which brings out the grain; while painting, the superficial, covers the surface, conceals the grain entirely or represents a false one. Many fine pieces of old furniture have been ruined by painting. Culture is not alone a product either of the intellectual ability, or the moral standard, or the esthetic sense of a person, but rather the quality of each. In determining how biology contributes to culture through these three main avenues, we must briefly make plain our understanding of these terms.

Let us for the sake of discussion, accept as a definition of culture, openness of mind; then we must necessarily ask in considering moral culture, this question, what is moral openness of mind? We gather some idea of a man's moral nature by his actions. We are here concerned only with the highest expression of this character. He who shows an appreciation and reverence for laws higher than those on the statute books has a desire for the noblest and best, which is an expression of his moral nature. Now if this same mind is open to receive facts of any sort, and is anxious to place them in their proper relations and to give to them their correct values, there then exists moral openness of mind.

How does biology contribute to moral openness of mind? That is, how does it contribute first to information and secondly and fundamentally to an anxiety to place facts in their true relationships? Of the different ways in which biology is of value in moral culture, we may mention the observance of law as one of the most important. For example in the study of the amoeba, the student may easily be brought to realize that not only fulness of life but actual existence is absolutely dependent on certain conditions such as moisture, food, and temperature. Fail to fulfil one of these conditions and lowered vitality or even death results. Here we have one of the simplest expressions of life yet in this but slightly differentiated mass of protoplasm, the student has presented to him most forcibly the impossibility of disobedience to higher laws.

Another phase of this same question is presented in the interdependence of all living organisms. The observations of many centuries have failed to establish a single example of spontaneous generation but they have repeatedly proved that life proceeds from life, that each individual is not alone dependent on a given environment for the continuance of life but is directly dependent on his fellows for the origin of individual existence. This naturally results in a study of reproduction in plants and animals which must present the importance and necessity of the process. Under the tuition of a high-minded instructor, there can hardly be established an ideal more wholesome and more sacred than that commonly found in the average young person.

After the student has acquired a conception of the higher laws and the mutual interdependence of all organisms, he is in possession of information that appeals to a deeper feeling than mere interest, and which impels him to stop and ponder. If he can get at the real significance of these and similar facts, it seems to us that he will be led to ask the question, whence come these laws and relationships? The conclusion that must inevitably follow is that they are an expression of God in nature.

Permit me again to state our definition of culture as openness of mind, this time to consider intellectual openness of mind. By intellect we mean ability to do independent thinking, not that we fail to recognize the psychologic constituents of intellect such as the sensations, perceptions, apperceptions, etc., and their importance in the growing mind, but what we are looking for is active intellect and that is power to think independently. He who can not do this is a slave and must forever remain such. To handle new and difficult problems, to place them in their proper relationships, and to sense correctly great movements, is an indication of one's intellectual ability and can result only from openness of mind. This is the characteristic of the mind that contributes to one's vocation. By this he is enabled to gain a livelihood; and because of this fact, it is the characteristic on which most stress is ordinarily placed. In short, information from which conclusions can be drawn and the power of critical observation which implies ability to estimate the relative value of facts, are the two main essentials to independent thinking.

When several people witness an event, no two see the same things or are able to present the same description. This may be taken as an example of general observation which differs greatly from detailed or critical observation. Biology furnishes the best of training in this second kind of observation. The student is given an organism to study, this is followed by a related organism and he is asked to note the similarities and differences existing between the two; and not only to compare but to explain them. This necessitates some thinking. Usually an opportunity is given for each student to state his explanations and some are asked to give their opinions. By this process the relative value of different facts is brought into consideration and there results an ability to estimate properly these different facts. How much importance does one set of facts have and should a second set be logically considered first or second in its bearing on the changes involved, are questions that are continually arising.

Nearly every one knows something about the changes incident in the transformation from the egg to the adult in the frog. The tadpole is so abundant that every boy in the country and small town and many in the cities are perfectly familiar with it. Many do notice that the limbs appear and that the tail is lost, but how many notice the order in which the limbs appear or the manner in which the tail is lost? If the tail should be removed artificially, is there any effect on the formation of the limbs, in other words are the appearance of the limbs and the absorption of the tail in any way correlated? Even such observations as these are more or less general and one of the teacher's difficulties is to secure exactness in the study of gross objects. But when the student begins microscopic work, the observations become more exact, the attention being definitely placed on one object which explains in part why students find beginning microscopic study so difficult.

I further believe that the greatest good is not secured from these observations and the drawing of correct conclusions unless the student be required to record them in a suitable notebook. After six years of examining secondary school notebooks the conclusion is forced on me that this phase of the work is not inspired by a sufficiently high ideal. It is not necessary that an expensive notebook be used but it is important that there be uniformity in a given class and a definite method in recording observations and making drawings. There can be but little pride in a book hastily made and with no fixed system. This phase of the training is an important one because here the student may learn to express himself in a clear and logical manner acquiring thereby to some extent at least a "certain amount of ease and elegance in writing."

Biology contributes moreover, to a broadening and clearing of the intellectual horizon in the character of the information presented which may also serve as an admirable background upon which we may study many of the modern questions. Take for example the fact that we have so many patent medicines, warranted to cure all aches and pains; also the large number of quack doctors who would not be in existence, if they were not making money. Now it occasionally happens that fake practitioners have well informed people for their victims but in the main it is the more ignorant class. We may well ask the question why this condition should exist. The answer is found in the following facts: comparatively few people know the real cause of disease, it is all more or less of a mystery to them and one fakir with a glib tongue and perfect assurance using a pseudoscientific mode of expression, forces conviction on the uncertain mind of the listener. So we find many strange views abroad concerning consumption and its supposed transmission from parent to offspring, while nearly every newspaper contains an advertisement guaranteeing to cure it. Similar crudities exist in regard to most of the common diseases. A general course in biology may very properly, while treating of bacteria, discuss their relation to disease. We believe that this would materially assist in establishing a saner appreciation of the laws controlling our own bodies and give to the well trained physician rather than to the fakir the remedying of disease.

If for the sake of further discussion, we accept our provisional definition of culture as openness of mind, the question now arises, what is esthetic openness of mind?

A proper attitude of the esthetic sense is difficult and unnecessary to define in detail, in general we may state these essential points. A cultivated esthetic sense unconsciously shudders at a lack of harmony in anything. The artist instinctively feels the slightest error in tone or coloring; but even the untrained esthetic sense is moved by the power of music, the perfection of a good picture, or the innate beauty of nature itself.

In proportion as a man's mind is open to the details of the beautiful and consequently more or less able to place them in their proper relations, in this same degree has he esthetic culture. At first thought this may seem to be untrue, for fundamentally the esthetic sense has to do quite as much with the emotions and the imagination as with the intellect, but on second thought one realizes that it is the man open to the details of the beautiful, and responsive to them whose emotions and imagination are so developed and stimulated that his attitude is one of sane appreciation rather than one of blind ecstacy.

My thoughts in regard to the beautiful in nature are best expressed in the following lines from Wordsworth.

For I have learned
To look on nature, not as in the hour
Of thoughtless youth; but hearing oftentimes
The still sad music of humanity...
And I have felt
A presence that disturbs me with a joy
Of elevated thoughts; a sense interfused,
Whose dwelling is the light of setting suns,
And the round ocean and the living air,
And the blue sky, and in the mind of man:
Therefore am I still
A lover of the meadows and the woods,
And mountains; and all that we behold
From this green earth; of all the mighty world
Of eye and ear...
Well pleased to recognize
In nature and the language of the sense,
The anchor of my purest thoughts..."

One student is born with more, another with less of the esthetic sense but it is possible to develop in both a large measure of appreciation of the beautiful. Biology does it in two ways: either the student sees in nature something beautiful which creates an interest that leads him to the laboratory where a detailed study brings him to a full appreciation of what already appealed to him or else having begun the study of biology for more utilitarian reasons, the laboratory study and the excursions into the fields and woods call to his attention and make plain beauties heretofore hidden or slighted; in either instance, it is not long before he is observing nature "with an eye made quiet by the power of harmony."

In illustrating how the esthetic sense may be cultivated by contact with nature two examples only will be given; many more might be cited.

The common humblebee while busily securing his food from the flowers performs a very important, yes, essential work for the lady slipper orchid, cypripedium. As he crawls between the lips of this flower after the honeyed solution produced for him, he finds that he can not escape by the same way that he came, but in order to gain his freedom must pass out past the pollen masses and the stigma. This opening is so arranged in relation to these structures that the bee's back comes in contact with them; if the bee has been to another cypripedium, cross fertilization is thus effected. This exchange of pollen is necessary to insure fertility to the orchid, though accomplished by the bee unconsciously yet so certain is it that the bee will visit the lady slipper that this is the only method of cross fertilization. Both of these organisms are beautiful in their coloring and their habits, but when we learn of the interdependence of each we have an added factor of interest which contributes in several different ways to the idea of esthetic harmony in nature.

Nearly every one knows the names of a few birds; their colors and songs appeal to our sense of the beautiful. But when we have only a speaking acquaintance with them, they do not contribute much to our happiness.

During the past summer I had occasion to spend a number of weeks in the Adirondacks, the nesting home of some of our choice birds. Here I saw them at home and became quite familiar with their love calls. The timid and shy bird of the city seems to have no fear of a man there. On many an evening our party sat and listened to the sweet singing of a family of hermit thrushes which nested in a tree near our camp. As the young ones matured and left their nest they, too, began to sing and we learned to distinguish the song of the parents from that of the young thrushes, one of which had a clear flutelike tone of great sweetness, specially was this so when the wind was moaning low in the solitude of the forest.

And there were several families of teacher birds too, which as you know hide their nests in the leaves on the ground. I spent many delightful hours trying to find one and all the time my imagination was forming pictures of where the nest would be, how it would look, and wondering if there would be any young fledglings in it. I was looking for the details of the beautiful in nature. I found them, though I never succeeded in my original quest.

"What we do see," says Lubbock, "depends mainly on what we look for. When we turn our eyes to the sky, it is in most cases merely to see whether it is likely to rain. In the same field the farmer will notice the crop, the geologist the fossils, botanists the flowers, artists the coloring, sportsmen the cover for game... We speak of the pleasure which nature and art and music give us; what we really mean is that our whole being is quickened by the uplifting of the veil. Something passes into us which makes our sorrows more sorrowful, our joys more joyful, our whole life more vivid."

Gertrude S. Burlingham—The subjects of the high school curriculum can be divided into about three groups; the first including the ones studied chiefly for their practical value, the second those which will develop the brain as a working mechanism but may be of very little practical use, and the third, the subjects which will bring the student into a knowledge of the world about him. In this class we may place history, literature, and natural science. To this group more than the others we may apply the term cultural studies. And after listening to Professor Smallwood's paper, I think we will agree that among these, biology ranks by no means least.

One possesses culture in proportion as he is in touch with the life about him. Biology is the only subject among the high school studies, which brings the student into direct contact with the life of which he is a part. Ideally, he should feel that he is studying at the fountain head; that whether the object for his consideration be an alga or a restless, cheery chickadee, he is studying not an opinion or an hypothesis, but a perfected handiwork, which, had it been less perfect, nature would not have preserved as that living type. When one approaches the study in this way, the mind is immediately open. And on the intellectual side, he finds himself gleaning a stock of information, without which, it is coming to be, one can not lay claim to a broad culture. At the same time, he is forming an acquaintance with living things with which he finds he has much in common, till he begins to draw for himself natural laws, not only in the spiritual, but in the social world.

Literature is man's effort to put nature and life into words. History is life studied secondhand and at a distance, and nature and art are inseparable. Thus biology is not merely a cultural study in itself, but it opens the mind to an appreciation of the best in literature and art, and lends a new meaning to history.

As an illustration of the fact that the study of biology does enrich the individual life, there comes to my mind the case of two young women, graduates of the same college and high school, living on the same street in a certain city. The one who had no training in biology, found herself the year after graduation, with time hanging heavily on her hands. In the midst of one of the richest bits of nature, she lived with eyes closed to the beauty of hills and forests, with ears deaf to the call of the birds—a stranger to the great world of out-of-doors. The other bade good speed to the junco, gathered arbutus to the song of the field sparrow, found where the rarest flowers bloomed. To her

> The meanest flower that blows can give,
> Thoughts that do often lie too deep for tears.

To the former, a primrose was—a primrose. The outlook of one was broad and rich, of the other, restricted and impoverished. Biology had given the one a power of independent work in a field which will ever be to her a source of enjoyment and growth.

Students, even in the last year of high school work, begin the study of biology with very little power to do independent work and careful thinking. They are unable to draw conclusions from a series of facts unless they have already studied physics or chemistry. The student has dealt mostly with textbooks, and does not know that he has the latent ability to gather facts for himself, that it is his privilege to collect knowledge first-hand and to do his own thinking. The mind easily becomes inert. Students, as a rule, dislike to think. They prefer to have some one think for them. Sometimes it is the textbook which fulfils this function; again it is another student; sometimes the teacher is led to do his thinking. Biology, properly taught, will make the student do his own thinking, and more than that, he will grow to like to think for himself. The testimony of students is often of great value, since they are in a position to know many things which a teacher does not know.

A young woman who graduated from the classical course in a certain well known high school, at the head of a class of seventy returned, for a little further work, including botany. At the close of the term she said that that was the first work which she had taken in high school, in which a student could not get some one to do his work and thinking for him. It may be well to state that she had taken no other laboratory science work. Laboratory work in biology means independent, individual work, the arranging of facts and forming proper conclusions.

Next to thinking, perhaps most high school students dislike accuracy. It is so much easier to say very small or very many, than to give exact size and number. The study of biology ought to develop a love of accuracy—this is one of the fundamental requirements in making a laboratory notebook. The drawings must be true to life and the written work accurate in statement. The making of a good notebook is in itself an intellectual, moral and esthetic culture. At the same time it is a very practical help in the ability to express thoughts in good English. The student becomes a producer of one form of English.

Children are naturally acute observers. But often by the time they reach the second year of high school, this power has become lost through disuse. Nature study will undoubtedly tend to obviate this condition. But if this is not so, the study of biology should restore this power of observation and educate it. The faculty of quick and accurate observation is certainly "openness of mind."

That biology is a valuable cultural study can not be denied. How can it best accomplish the desired results? First it must be taught in such a way that the student will be brought into an intimate, sympathetic relation with nature, into a position where nature can speak to him, and in which he can interpret her messages. Again the laboratory and class work must be so conducted as to make other than original, independent work impossible. It must develop an appreciation and love of accuracy. The field and laboratory work should educate in the student the power of quick and accurate observation. And lastly, the study of biology should act in the mind as a ferment which time can not kill, so that the mind will be stimulated to reach out for more knowledge at each opportunity till, little by little, it attains more nearly the standard of a perfect culture.

EXHIBITION OF A DECEREBRIZED FROG

BY BURT G. WILDER, CORNELL UNIVERSITY

Prof. Burt G. Wilder of Cornell University exhibited a living frog that was decerebrized Dec. 4, 1899, four years ago. Since that date, excepting slight occasional shiftings of the limbs, as if from muscular ennui, it has manifested neither consciousness nor volition, and has to be fed by placing bits of meat or fish well down the throat within reach of the reflex mechanism of swallowing. Nevertheless it leaps when touched, turns over when placed on the back, swims till a support is found, and balances itself on a slowly revolving cylinder. From this last manifestation of powers evidently residing elsewhere than in the cerebrum, and in honor of the German physiologist who first called attention to it, a frog so operated on is known as "Goltz's balancing frog." For many years such a frog has been shown to the classes in physiology at Cornell, but never before, so far as the speaker knows, has one been kept alive so long.[1]

---

[1] September 1904 the frog was alive and apparently in good condition.

The animal is etherized, a part of the skin on the top of the head turned off as a flap, and a bit of the cranium removed; with sharp scissors the brain is transected at the diencephal (region of the thalami) and the cerebral hemispheres and olfactory bulbs wholly removed. In this connection Professor Wilder stated that, from the opening of the University, in his department, all experiments that might be painful had been performed on animals either just killed or fully anesthetized.

Section C. EARTH SCIENCE

TEXTBOOKS IN GEOGRAPHY

BY MARGARET KEIVER SMITH, NEW PALTZ NORMAL SCHOOL

Ages ago, a certain writer, in a discouraged mood, despairingly declared his convictions regarding the endlessness of bookmaking, and the weariness resulting from the study of books. If these were his sentiments at a time in the world's history when books were a rarity, and study was limited to the leisured few, what would the wise man say today, when books are in numbers as the sands of the sea, and when the weariness of study is imposed upon every child of Adam that can lay the slightest claim to civilization?

From the association of books with study, and the mention of the consequent weariness to the flesh, we take it that the wise man was not inexperienced in the matter of textbooks, though not for a moment should we think of ascribing his reputed wisdom to this source.

Universal as they are, and indispensable as we admit them to be, no one under any circumstances assumes that wisdom is to be achieved through the use of textbooks. As a rule neither knowledge nor wisdom is to be found between the covers of a book, text or otherwise. If, bringing a good natural intelligence to bear on the matter contained therein, the student find anything that shall develop this intelligence and aid in forming significant thought, he is fortunate indeed.

In itself, no book is an end. Often it is a very poor means toward the attainment of an end. Without an understanding of its use and possibilities, it is a great hindrance to intellectual development. The time has gone by when a great reader, a devourer of books, a bookworm, was regarded as a man of wisdom. Even the man of one book, against whom we are warned, unless his knowledge be supplemented by experience, is regarded with uncertainty, and even suspicion. The test of wisdom is not that which a man takes into his mind, but that which he brings to pass by reason of that which he has taken in.

The individual who reads much is in danger of becoming a very lazy person. It is so easy to sit still, and see the beliefs of an author reflected in one's mind as in a mirror; and it is so pleasant to assume that since one recognizes them, one understands them; and from this condition, one may easily attain to the conviction that one originated them, or could do so, if one were so disposed.

And yet books, even textbooks are a necessity. Make such objections as we may, we must perhaps admit that even a poor textbook is better than none at all. Taken at its worth, its mission is still beneficent, inasmuch as it can at any rate show us how not to do it.

There is but little danger that even a bookworm will ever become a devourer of textbooks. The dislike to a work of this kind is too instinctive, and the tendency to judge the author unfavorably is too strong. The poor author! Gratitude to any author is hardly a mark of any reader, but probably no writer performs a more thankless task than he who writes a textbook.

Carlyle said, and the world has echoed the sentiment, that probably once in 200 years a man is born who is fit to write a book; but no one accepts the volume as a textbook. Indeed it would not surprise us to learn that the man who is fit to write a textbook has not yet been born. There are good books in the world, but is there a good textbook?

" Yes," says the author, " a book that presents a comprehensive and scholarly treatment of a subject, and at the same time, adapts that treatment to the apprehension of the immature mind, throughout providing for the mechanic side of learning, in the way of summary, reproduction and drill—that is a good textbook." "Yes," says the energetic publisher, "a textbook that goes off directly after publication forty or fifty thousand dollars worth, and keeps that up yearly, say for 10 years, that is a very good textbook. But a book that dawdles at the first moment will never do more than pay expenses, and, though a Solomon may have written it, it isn't a good textbook. It is not the textbook that the public needs. The money value is a very good standard in the matter of textbooks."

We know of more ways than one of starting a new textbook on its career, so that the pleasant figures just quoted may be reached at a bound, and we know of more ways than one for giving this book momentum sufficient to keep it going for, say, 10 years. In all these ways Solomon may or may not have a part, but notwithstanding the wisdom of Solomon, and energy of the publisher, the most successful textbook leads a doomed life, and has an assured fate, viz, in the near future to find a resting place on the top shelves of some dark closet; or to become a part of the refuse lumber of some dusty attic. If by accident we come on it, we turn away to avoid the memory of painful and tedious experiences with that book, and with teachers who demanded for it a certain interpretation and tolerated no other. Those were dark days, and were better left to the dimness of the attic.

If we desire information on any subject, we seek it anywhere rather than between the covers of a textbook. Something in the very aspect of the volume brands it with the charge of inadequacy. This is true of textbooks in general, but of textbooks in geography it is specially true. We are even a trifle prejudiced against the size and form of this book. It is unpleasantly suggestive of the weighty pyramid of school lore which the pale girl rears on its broad, flat base, and which supported by insufficient arm and hip, she bears unwillingly to school.

Writers of present day textbooks in geography make a merit of changing its unwieldy shape, so that the geography text of the public school is coming to assume the bulky proportions of the school history, or indeed, of any other volume of the pile.

The textbook in geography of the past had a somewhat limited purpose. It was intended to furnish a certain amount of information—mathematical, physical, and political—concerning the earth. This information was set forth in a series of definitions and descriptions, together with a catalogue of divisions of land and water, to which was appended a brief historical account of life, vegetable and animal, and of the names of the races of man on the earth.

From the standpoint of this manual, the earth had no past and no future. As it was, it might have sprung into being in a night, and, as it was, might be destined as suddenly to pass away.

The definitions of the book were totally independent of one another, and were generalizations on the basis of no known particular. The pupil's work was to learn the volume verbatim. The result was that, after an extended course, an individual might know the book from cover to cover, and not realize that the matter contained therein bore any relation whatever to the earth on which he lived.

The cities of the world were not in the world, but in the book, and after long familiarity with them in the latter location, later in life one was startled to discover that the real world and the book world were quite different existences, and that familiarity with the book world did not by any means imply a working knowledge of the real world.

As a commendable point, it may be mentioned that the definitions really defined, and that the descriptions were usually expressed in concise and significant language.

The map studies dealt entirely with locations, but they located nothing outside the map. The map was the real thing and the reason for its existence was not always apparent. Stories are told of children who while reciting matter concerning the earth, declared that they never had seen the earth nor any part of it. The same children were known to state the definition of an ocean, and in the face of the Atlantic, not a mile away, to declare that they had never seen an ocean except in the patch of blue on the map. Europe was a patch of red, Asia yellow, and Africa more or less brown.

The relation of the map to the earth was seldom if ever mentioned. The vigor with which the teacher insisted that the book should be learned verbatim imparted to the text a character of reality and finality which made it seem the end and aim of all effort.

Perhaps it is not too much to say that, except in individual cases, no real geographic knowledge was gained from the textbook.

One learned to know countries and cities and people from reading stories, travels, history, poetry, and from hearing one's elders discuss the contents of newspapers; but one never thought of mentioning such things in connection with the geography lesson.

The textbook that furnished such inadequate instruction, while possibly better than none, was very undesirable, and with advancing intelligence concerning the significance of instruction, a reform became an absolute necessity. The textbook, having nothing to do with the child's actual experience furnished no knowledge, and worse still, aroused no interest on the part of the learner.

In order to find a reason for the arbitrary work in connection with the old textbook, which I fear has not yet entirely disappeared, it may be necessary to go back a little to find just how geography ever became a subject of instruction in the common schools.

The first mention of geography in this country is by Comenius somewhere near the middle of the 17th century. The step taken by Comenius seems to have been due to suggestions by Lord Bacon of England. Bacon made no plea for the study of geography as such in the schools, but he urged strenuously the necessity for teaching the real things of the world, rather than the traditions of things.

For the first instruction in geography, Comenius proposed to do the work without any textbook whatever. In the early work in the first department of school life (children from 4 to 6 years), the pupils were to become familiar by actual observation, with a hill, a valley, a field, a brook or river, a lake or pond, a village or town, a city, etc. They should know the sun, its rising and setting, the moon, its rising and going down, and the stars, together with the names of a few special ones. In the next department (children from 6 to 14 years), the pupils should learn the curve of the heavens, the spheric form of the earth, the movement of the ocean, the crooks and turns of a river, the divisions of the earth, the principal kingdoms of Europe, and the cities, rivers, and mountains of their own countries.

All this was to be learned from observation, inference, conversation and reading.

In the advanced department, or latin school (pupils from 14 to 18 years), students should study geography scientifically. They should be furnished with excellent textbooks, maps, charts and apparatus. They should learn land and water forms, atmospheric phenomena, political relations between countries, etc.

The aim of Comenius was to secure accurate knowledge of real things, on which he might later arrange a system of scientific generalizations, which, in their turn, should serve as a foundation for philosophic thinking.

Probably, since the time of Comenius, no better scheme of instruction has been conceived, and the wonder is that it has not been more closely followed. We may observe that in it, the textbook only comes into use in the highest department of the school, and that it is a textbook fitted for scientific work.

John Locke, a contemporary of Comenius, was instrumental in introducing geography into the schools of England; but his plan of instruction was such as to defeat the very end he had in view. He advocated the learning verbatim of facts expressed in a textbook and on maps. Probably he never discovered that geographic generalizations memorized without any knowledge of the underlying ideas furnished no more real knowledge than did memorized grammar and history.

Locke's influence on the teaching of geography in England lasted for at least 200 years, probably in some parts of the kingdom it is yet active.

The custom of learning the textbook verbatim was brought to America perhaps by the Pilgrim Fathers, and up to 1860, at least, it was practised in all the schools.

As the textbook always stood between the teacher and the pupil, it is no matter for wonder that the child was lost sight of, and that quite unconsciously the powers of the adult came to be attributed to the infant. The failure to recognize the difference between the child mind, and the adult mind seems always to arise in cases of excessive textbook work.

The influence of the Pestalozzian work done at Oswego in the sixties and seventies; Guyot's visit to America and his lectures in Lowell Mass.; the publication of Humboldt's *Cosmos,* together with the translation of Ritter's *Comparative Geography,* and (perhaps more than all) the development of the theory of evolution, brought about a positive reaction against the finality of the old textbook. Before referring to our textbooks as they are at present, it may be well to mention several significant points which ought to have some influence in determining the character of our textbooks in the future.

1 The development of geography as a science out in the world is very much in advance of the development of geography as a subject of instruction in the schools.

2 People who are pursuing geography zealously out in the world do not seem to attach any importance to the work done in this subject by our public school teachers. Much less would they think of referring to any one of our textbooks in geography for any important geographic item.

3 It is a question whether many, perhaps whether any of our public school teachers of this subject could achieve a membership in any important geographic society in this country or abroad.

The reason for the difference between geography out in the world, and in the schoolroom lies largely perhaps in the difference between the aim of work in the world, and the aim of work in the schoolroom.

The causes that have led to the acquisition of geographic knowledge out in the world, have, many of them, been at work since the beginning of civilization. As civilization has advanced, new reasons for the pursuit of knowledge of the earth have arisen and have become so prominent that the study of the earth on which we live has become more imperative than any other study, so that just at present, our teachers are overwhelmed with the multiplicity of subjects which zealous people assure us come under the head of geography.

Some of the more important causes for the acquisition of geographic knowledge are

1 The wandering instinct, the love of adventure and discovery for its own sake.

2 War and conquest. Here for purposes of offense and defense, geographic knowledge has always been an absolute necessity.

3 Colonization, religious zeal, pilgrimages, crusades, missionary work have all been at the bottom of the acquisition of geographic knowledge by people interested in these directions.

4 Desire for knowledge for its own sake has always been alive in the world, and has always kept man working on the great problem of the earth with a view to satisfying human curiosity concerning the beginning and the end of the world.

5 The very strongest impulse towards the study of geography, however, has been and still is that of commerce, which takes into consideration all phases of life, and all geographic considerations through which life can be improved and perfected.

Among the later influences on this subject may be mentioned the development of science in every department of civilized life. Through photography alone, the increase of pictures of foreign countries has been a great incentive to travel, so that people now flock to the ends of the earth to experience changes in climate, to look on mountains, to learn the beauties of rivers and lakes. These desires for the experience of something new have given a tremendous impulse to the study of guidebooks, maps, and books of travel.

In addition to the influences just mentioned, the recent polar expeditions, and the results of the surveys of countries that are now being carried on are doing much to increase the interest in geographic study.

In comparison with the interest and activity out in the world, our interest and our results in connection with schoolroom geography appear to be very feeble and ineffective. Whether the function of the school be to impart to the children the knowledge that has been gained outside, or to prepare the individual to appropriate and apply that knowledge that awaits him when he goes out into the world, we must acknowledge that our success in the matter of geography, up to the present time has been very limited.

While we can not perhaps bring into the school the aims and interest which direct the best efforts of mankind in the world, our work ought to be of such a character as to make the attainment of practical ends later more possible and less difficult than they are at present.

Geographic literature, as we find it in books of travel, history, science, and the leading periodicals, besides having a great commerical significance, is not without a very important culture value.

Textbook geography as it is arranged, has little if any commercial significance, and up to the last year or two, its culture value has been imperceptible. The activity in connection with geography in the world outside has exerted some influence on our textbooks, but as yet, the results are not all favorable.

We have found that the phenomena of life on the earth are geographically determined, but for the most part, we have failed to distinguish between the result determined by geography, and the geographic phenomena themselves. Owing to the failure to distinguish between cause and effect, much material has been brought into the textbook which really does not belong there, and which prevents a scientific treatment of the subject.

Another reason for swelling the textbook to undesirable proportions lies in the effort that has been made to render the study

of geography a means of intellectual development second to no other. To this end the "causal relation" and the "human interest" have both claimed a place in the book.

In order to work out the causal relation, however, no inconsiderable knowledge of mathematics, physics, geology, astronomy, botany, and other related sciences, is necessary. In the attempt to impart this knowledge incidentally, the text has become laden with collateral material which textbook makers themselves admit is not geography, but which they assert must be learned before geography can be understood. This last statement is true, but textbook makers should understand that such subjects can not be understood through such fragmentary items as are here and there presented in connection with geography.

This extraneous material has not been properly subordinated to the purpose which it is intended to serve; hence the voluminous and confused character of many of our present textbooks in geography. The understanding of the explanatory subjects is often more difficult than is the understanding of the subject which they explain.

The work on the "life interest" is no less extensive than that on the causal relation, and involves the insertion of a vast amount of matter that has not yet been subordinated to its purpose.

Owing to the fragmentary and varied character of the explanatory or illustrative material, a systematic management of the text is difficult, and at times impossible.

The result is that in the majority of our present day textbooks we have a mass of matter that is not recognized by any well established geographic society in the world.

In many cases, textbook writers themselves are but little scientific in their habits of thinking and writing; hence do not know how to subordinate unimportant points to those absolutely essential to the apprehension of a subject. The nature of the child, and the nature of geography as a science, seem to be equally foreign to them.

Another cause of inadequacy is that many of our textbooks are constructed to fit the limitations of teachers. Sometimes the

text seems to be prepared with a view to what the teacher can not teach. Within the last few months, the writer has been told by both publishers and textbook makers that if the textbooks were scientific, the teachers could not use them. This appears to be a most significant comment, and ought to arouse attention to the character of the teaching in our public schools. At the same time, it may be said that even a poor teacher is much more liable to develop power from the use of a well prepared scholarly textbook, than from the use of a carelessly arranged inaccurate one.

Another weakness to be met with is, that the writer in his endeavor to arouse the interest of the child by meeting him on his own ground instead of being merely simple and easy of apprehension, becomes inaccurate, unscholarly and misleading.

Another difficulty in the way of our obtaining thoroughly good textbooks lies in the lack of standards for comparison. We seem to have few if any best books. One book is as good as another on the whole, so that our books enjoy an unenviable mediocrity.

Still another hindrance exists in the unclassified, ungraded character of our textbooks in geography. The same text is sometimes used for the grammar grades, the high school, the normal school, and even the college.

When this is the case, the book must either be above the intelligence of the children of the grammar grades, or below the mental capacity of the high school, normal school, or college student and, therefore, the work with it must be more or less ineffective.

If time permit, a word must be said concerning the method of presentation as indicated by the textbook.

The concentric method appears to meet the approval of some writers, and, if the principles of this plan were strictly adhered to, the results might perhaps compare favorably with those of other methods. With so[illegible]ters this method seems to imply a partial repetition of [illegible] irregular intervals. We have heard of one book in w[illegible]omy is treated in 13 different places; meteorology ap[illegible] places; geology is touched on in 29 different places; [illegible]gy in 19 places; industry and of geography a means of intellectual development second to no other. To this end the " causal relation " and the " human interest " have both claimed a place in the book.

In order to work out the causal relation, however, no inconsiderable knowledge of mathematics, physics, geology, astronomy, botany, and other related sciences, is necessary. In the attempt to impart this knowledge incidentally, the text has become laden with collateral material which textbook makers themselves admit is not geography, but which they assert must be learned before geography can be understood. This last statement is true, but textbook makers should understand that such subjects can not be understood through such fragmentary items as are here and there presented in connection with geography.

This extraneous material has not been properly subordinated to the purpose which it is intended to serve; hence the voluminous and confused character of many of our present textbooks in geography. The understanding of the explanatory subjects is often more difficult than is the understanding of the subject which they explain.

The work on the " life interest " is no less extensive than that on the causal relation, and involves the insertion of a vast amount of matter that has not yet been subordinated to its purpose.

Owing to the fragmentary and varied character of the explanatory or illustrative material, a systematic management of the text is difficult, and at times impossible.

The result is that in the majority of our present day textbooks we have a mass of matter that is not recognized by any well established geographic society in the world.

In many cases, textbook writers themselves are but little scientific in their habits of thinking and writing; hence do not know how to subordinate unimportant points to those absolutely essential to the apprehension of a subject. The nature of the child, and the nature of geography as a science, seem to be equally foreign to them.

Another cause of inadequacy is that many of our textbooks are constructed to fit the limitations of teachers. Sometimes the

text seems to be prepared with a view to what the teacher can not teach. Within the last few months, the writer has been told by both publishers and textbook makers that if the textbooks were scientific, the teachers could not use them. This appears to be a most significant comment, and ought to arouse attention to the character of the teaching in our public schools. At the same time, it may be said that even a poor teacher is much more liable to develop power from the use of a well prepared scholarly textbook, than from the use of a carelessly arranged inaccurate one.

Another weakness to be met with is, that the writer in his endeavor to arouse the interest of the child by meeting him on his own ground instead of being merely simple and easy of apprehension, becomes inaccurate, unscholarly and misleading.

Another difficulty in the way of our obtaining thoroughly good textbooks lies in the lack of standards for comparison. We seem to have few if any best books. One book is as good as another on the whole, so that our books enjoy an unenviable mediocrity.

Still another hindrance exists in the unclassified, ungraded character of our textbooks in geography. The same text is sometimes used for the grammar grades, the high school, the normal school, and even the college.

When this is the case, the book must either be above the intelligence of the children of the grammar grades, or below the mental capacity of the high school, normal school, or college student and, therefore, the work with it must be more or less ineffective.

If time permit, a word must be said concerning the method of presentation as indicated by the textbook.

The concentric method appears to meet the approval of some writers, and, if the principles of this plan were strictly adhered to, the results might perhaps compare favorably with those of other methods. With some writers this method seems to imply a partial repetition of topics at irregular intervals. We have heard of one book in which astronomy is treated in 13 different places; meteorology appears in 21 places; geology is touched on in 29 different places; anthropology in 19 places; industry and

of geography a means of intellectual development second to no other. To this end the "causal relation" and the "human interest" have both claimed a place in the book.

In order to work out the causal relation, however, no inconsiderable knowledge of mathematics, physics, geology, astronomy, botany, and other related sciences, is necessary. In the attempt to impart this knowledge incidentally, the text has become laden with collateral material which textbook makers themselves admit is not geography, but which they assert must be learned before geography can be understood. This last statement is true, but textbook makers should understand that such subjects can not be understood through such fragmentary items as are here and there presented in connection with geography.

This extraneous material has not been properly subordinated to the purpose which it is intended to serve; hence the voluminous and confused character of many of our present textbooks in geography. The understanding of the explanatory subjects is often more difficult than is the understanding of the subject which they explain.

The work on the "life interest" is no less extensive than that on the causal relation, and involves the insertion of a vast amount of matter that has not yet been subordinated to its purpose.

Owing to the fragmentary and varied character of the explanatory or illustrative material, a systematic management of the text is difficult, and at times impossible.

The result is that in the majority of our present day textbooks we have a mass of matter that is not recognized by any well established geographic society in the world.

In many cases, textbook writers themselves are but little scientific in their habits of thinking and writing; hence do not know how to subordinate unimportant points to those absolutely essential to the apprehension of a subject. The nature of the child, and the nature of geography as a science, seem to be equally foreign to them.

Another cause of inadequacy is that many of our textbooks are constructed to fit the limitations of teachers. Sometimes the

text seems to be prepared with a view to what the teacher can not teach. Within the last few months, the writer has been told by both publishers and textbook makers that if the textbooks were scientific, the teachers could not use them. This appears to be a most significant comment, and ought to arouse attention to the character of the teaching in our public schools. At the same time, it may be said that even a poor teacher is much more liable to develop power from the use of a well prepared scholarly textbook, than from the use of a carelessly arranged inaccurate one.

Another weakness to be met with is, that the writer in his endeavor to arouse the interest of the child by meeting him on his own ground instead of being merely simple and easy of apprehension, becomes inaccurate, unscholarly and misleading.

Another difficulty in the way of our obtaining thoroughly good textbooks lies in the lack of standards for comparison. We seem to have few if any best books. One book is as good as another on the whole, so that our books enjoy an unenviable mediocrity.

Still another hindrance exists in the unclassified, ungraded character of our textbooks in geography. The same text is sometimes used for the grammar grades, the high school, the normal school, and even the college.

When this is the case, the book must either be above the intelligence of the children of the grammar grades, or below the mental capacity of the high school, normal school, or college student and, therefore, the work with it must be more or less ineffective.

If time permit, a word must be said concerning the method of presentation as indicated by the textbook.

The concentric method appears to meet the approval of some writers, and, if the principles of this plan were strictly adhered to, the results might perhaps compare favorably with those of other methods. With some writers this method seems to imply a partial repetition of topics at irregular intervals. We have heard of one book in which astronomy is treated in 13 different places; meteorology appears in 21 places; geology is touched on in 29 different places; anthropology in 19 places; industry and

of geography a means of intellectual development second to no other. To this end the "causal relation" and the "human interest" have both claimed a place in the book.

In order to work out the causal relation, however, no inconsiderable knowledge of mathematics, physics, geology, astronomy, botany, and other related sciences, is necessary. In the attempt to impart this knowledge incidentally, the text has become laden with collateral material which textbook makers themselves admit is not geography, but which they assert must be learned before geography can be understood. This last statement is true, but textbook makers should understand that such subjects can not be understood through such fragmentary items as are here and there presented in connection with geography.

This extraneous material has not been properly subordinated to the purpose which it is intended to serve; hence the voluminous and confused character of many of our present textbooks in geography. The understanding of the explanatory subjects is often more difficult than is the understanding of the subject which they explain.

The work on the "life interest" is no less extensive than that on the causal relation, and involves the insertion of a vast amount of matter that has not yet been subordinated to its purpose.

Owing to the fragmentary and varied character of the explanatory or illustrative material, a systematic management of the text is difficult, and at times impossible.

The result is that in the majority of our present day textbooks we have a mass of matter that is not recognized by any well established geographic society in the world.

In many cases, textbook writers themselves are but little scientific in their habits of thinking and writing; hence do not know how to subordinate unimportant points to those absolutely essential to the apprehension of a subject. The nature of the child, and the nature of geography as a science, seem to be equally foreign to them.

Another cause of inadequacy is that many of our textbooks are constructed to fit the limitations of teachers. Sometimes the

text seems to be prepared with a view to what the teacher can not teach. Within the last few months, the writer has been told by both publishers and textbook makers that if the textbooks were scientific, the teachers could not use them. This appears to be a most significant comment, and ought to arouse attention to the character of the teaching in our public schools. At the same time, it may be said that even a poor teacher is much more liable to develop power from the use of a well prepared scholarly textbook, than from the use of a carelessly arranged inaccurate one.

Another weakness to be met with is, that the writer in his endeavor to arouse the interest of the child by meeting him on his own ground instead of being merely simple and easy of apprehension, becomes inaccurate, unscholarly and misleading.

Another difficulty in the way of our obtaining thoroughly good textbooks lies in the lack of standards for comparison. We seem to have few if any best books. One book is as good as another on the whole, so that our books enjoy an unenviable mediocrity.

Still another hindrance exists in the unclassified, ungraded character of our textbooks in geography. The same text is sometimes used for the grammar grades, the high school, the normal school, and even the college.

When this is the case, the book must either be above the intelligence of the children of the grammar grades, or below the mental capacity of the high school, normal school, or college student and, therefore, the work with it must be more or less ineffective.

If time permit, a word must be said concerning the method of presentation as indicated by the textbook.

The concentric method appears to meet the approval of some writers, and, if the principles of this plan were strictly adhered to, the results might perhaps compare favorably with those of other methods. With some writers this method seems to imply a partial repetition of topics at irregular intervals. We have heard of one book in which astronomy is treated in 13 different places; meteorology appears in 21 places; geology is touched on in 29 different places; anthropology in 19 places; industry and

of geography a means of intellectual development second to no other. To this end the " causal relation " and the " human interest " have both claimed a place in the book.

In order to work out the causal relation, however, no inconsiderable knowledge of mathematics, physics, geology, astronomy, botany, and other related sciences, is necessary. In the attempt to impart this knowledge incidentally, the text has become laden with collateral material which textbook makers themselves admit is not geography, but which they assert must be learned before geography can be understood. This last statement is true, but textbook makers should understand that such subjects can not be understood through such fragmentary items as are here and there presented in connection with geography.

This extraneous material has not been properly subordinated to the purpose which it is intended to serve; hence the voluminous and confused character of many of our present textbooks in geography. The understanding of the explanatory subjects is often more difficult than is the understanding of the subject which they explain.

The work on the " life interest " is no less extensive than that on the causal relation, and involves the insertion of a vast amount of matter that has not yet been subordinated to its purpose.

Owing to the fragmentary and varied character of the explanatory or illustrative material, a systematic management of the text is difficult, and at times impossible.

The result is that in the majority of our present day textbooks we have a mass of matter that is not recognized by any well established geographic society in the world.

In many cases, textbook writers themselves are but little scientific in their habits of thinking and writing; hence do not know how to subordinate unimportant points to those absolutely essential to the apprehension of a subject. The nature of the child, and the nature of geography as a science, seem to be equally foreign to them.

Another cause of inadequacy is that many of our textbooks are constructed to fit the limitations of teachers. Sometimes the

text seems to be prepared with a view to what the teacher can not teach. Within the last few months, the writer has been told by both publishers and textbook makers that if the textbooks were scientific, the teachers could not use them. This appears to be a most significant comment, and ought to arouse attention to the character of the teaching in our public schools. At the same time, it may be said that even a poor teacher is much more liable to develop power from the use of a well prepared scholarly textbook, than from the use of a carelessly arranged inaccurate one.

Another weakness to be met with is, that the writer in his endeavor to arouse the interest of the child by meeting him on his own ground instead of being merely simple and easy of apprehension, becomes inaccurate, unscholarly and misleading.

Another difficulty in the way of our obtaining thoroughly good textbooks lies in the lack of standards for comparison. We seem to have few if any best books. One book is as good as another on the whole, so that our books enjoy an unenviable mediocrity.

Still another hindrance exists in the unclassified, ungraded character of our textbooks in geography. The same text is sometimes used for the grammar grades, the high school, the normal school, and even the college.

When this is the case, the book must either be above the intelligence of the children of the grammar grades, or below the mental capacity of the high school, normal school, or college student and, therefore, the work with it must be more or less ineffective.

If time permit, a word must be said concerning the method of presentation as indicated by the textbook.

The concentric method appears to meet the approval of some writers, and, if the principles of this plan were strictly adhered to, the results might perhaps compare favorably with those of other methods. With some writers this method seems to imply a partial repetition of topics at irregular intervals. We have heard of one book in which astronomy is treated in 13 different places; meteorology appears in 21 places; geology is touched on in 29 different places; anthropology in 19 places; industry and

occupations occur in 30 places. This presentation of disconnected items from the same subject can hardly fail to exert an injurious influence upon the child's continuity of thought and must go far to destroy unity of intellect.

As regards the construction of a textbook that will be a help to instruction in geography we should first consider the degree of development that will warrant the use of a textbook by children.

Till a certain experience is gained, and a certain amount of knowledge is acquired, the generalizations of a well prepared textbook must be meaningless to the child. To put him in possession of this necessary experience and knowledge, a certain phase of instruction, known as home geography, has been arranged. While the efforts in this connection have been and are commendable, the results as yet are not entirely satisfactory. As a matter of fact, children care comparatively little for the phenomena of land, water and air in themselves. Neither do they care for man's industries to any great degree. The beauties of nature as such, or the adaptation of organisms to their uses do not specially impress them. They do care, however, for the life interest, and specially for all manifestations of human beings. Human activity, however, as manifested in the phases in which children do care for it, is not exactly the matter of geography, and therefore has hardly a legitimate place in the textbook.

By all means, let the life interest have a very prominent place in early education, but let it be what it is—not geography, though it is a very excellent preparation for geography. The life interest can not be met by a textbook, but it can be met by stories, conversation, and reading books.

The utmost care should be given to the selection and grading of the material: stories of people about us; stories of people far away; fables; myths; heroic stories; historic stories; books of adventure; books of travel; books of discovery; poetry of a narrative kind.

This material should be carefully graded according to the advancement of the children. Because of their culture value, these stories should be of the best, and should be such as are written by masters, not adapted by uneducated girls, or by women who claim some feeble literary learning.

In connection with this work maps should be used. By means of them scenes and characters of stories should acquire local habitations. Land and water forms, climate, soil, altitude should receive constant reference as determining conditions of action.

The play of the elements should be utilized in enhancing the difficulties or favoring the performances of favorite heroes.

In this way the elements of geographic knowledge, being quickened by human life, acquire an interest which geographic study of itself could never arouse.

By the time that children are ready for the high school they should possess a fund of material that will enable them to understand the generalizations of the textbook in geography.

The textbook for pupils thus trained must of necessity be scientific in thought, and scholarly in expression. It ought to be the best effort of a geographer, and of a man of letters.

The general textbook in geography prepared for the high school might include perhaps four different subjects.

Under the first should come the consideration of the earth in its individual existence, and in its relations to the sun, and to the other planets.

The treatment of this part of geography seems to be omitted more and more, the space being devoted to the discussion of physical geography.

As a matter of fact without a somewhat full treatment of astronomical geography, physical geography can be but imperfectly understood.

In the first division of the book, the representative character which distinguishes geography from every other science should be fully and clearly presented. The omission of this has been the cause of much confusion as to what really constitutes geography as a science. By depending too much on the other sciences of the earth, e. g. geology, the development of geography is greatly delayed.

Within the first division also may come a presentation of the principles underlying the changes taking place in the surface of the earth. Also the relations of continental structure, the formation of islands, and the courses of rivers. All these should receive more careful treatment than has yet been given them.

The second division of the textbook ought to give more advanced work on atmospheric phenomena with a view to making climate (perhaps the greatest influence determining man's development) more generally intelligible.

The textbook in this connection should provide for a kind of laboratory work by means of which local phenomena of the sun, clouds, wind, temperature, precipitation, and so on, might be observed as influences largely determining the weather and climate of a locality. In addition to this, the influences of the distribution and structure of the land and water forms of the earth on climate should be treated.

After a careful presentation of the first and second subjects, there should come the third, namely, the treatment of the geographic determination of the development and distribution of plant and animal life.

The confused treatment of this topic in many of our textbooks, often leaves one uncertain whether one may not be studying botany or zoology quite apart from geography.

The fact that all manifestations of life are geographically conditioned, should be very clearly presented. It is so vaguely apprehended that much of the work in this connection is practically valueless, either as a means of knowledge or as a means of intellectual development. The work in this division is not entirely geographic. It is rather an application of the principles of the first two divisions.

The fourth and last division of the textbook might very profitably be devoted to a second application of the principles of the first two divisions, viz, to the distribution of races on the earth, and to the geographic determination of man's activity. Owing to lack of understanding of geographic laws, these determinations have not yet been adequately worked out.

Man's activity as manifested in his industry, government, art, social customs, religion, and philosophy is either remotely or closely related to climate, location, and other earth influences; and an adequate understanding of these influences on man's activity would do much to furnish a clearer view of humanity as a whole.

As in the preceding step this work is historical rather than geographic, but a careful consideration of conditions and their results will do much to broaden one's apprehension of what one already knows.

In addition to the textbook for students, there should be textbooks for teachers. The teacher should study something beyond that which is prepared for pupils. He can, it is true, get much from general reading, but often he has neither the time nor the strength to arrange the matter of general literature into the best form for presentation in a classroom.

Because of the lack of textbooks arranged from the teacher's point of view, the work in normal schools seems to be greatly hindered. In some schools, the same text is studied both by the teachers in training, and the pupils in the practice school. This appears to be one means of keeping the young teacher down to the level of her pupils!

We should have working textbooks in geography constructed on the laboratory plan of textbooks in chemistry and physics.

Textbooks in what we call historical geography, military geography, commercial geography, can hardly be regarded as real textbooks in geography. They are historical in their character, and are intended to show how history, war, and commerce have been and are determined by geographic conditions. Without a clear understanding of this fact their use may be a means of delaying the development of geographic knowledge. They should be studied after the principles of geography have been learned.

Tuesday morning

GENERAL SESSION

CHEMISTRY IN THE HIGH SCHOOL

BY E. G. MERRITT, LAFAYETTE HIGH SCHOOL, BUFFALO

In view of the progress made in educational ideas during the past quarter of a century it is needless for us to present arguments in favor of science teaching in secondary schools. The increasing demand for science courses in our high schools is an evidence of the recognition of their practical and educational value.

Though science has, after a long struggle, secured a permanent place in the curriculum, its opponents still question its value as a means of discipline when compared with the classics. This view is often made evident by the objections that are made to the granting of the B. A. degree to graduates from science courses.

It seems to me that, of all the sciences, none touches the pupil at more points or is more closely related with human needs and the ability to supply them, than chemistry. To make claim to liberal education one should know something of the composition of the earth on which he lives and of the water and air that envelop it; of the food which sustains his life and the principles of nutrition; of the known elements and some of their general properties; of the more important technical operations in which chemistry is involved, such as the manufacture of iron and steel, sugar, glass, leather and many other similar processes. Why be up on ancient history and heathen mythology and confess absolute ignorance of facts that concern us so vitally?

Admitting the demands of chemistry to a place in the high school course, what portion of the subject shall be taught and what shall be the method of presentation?

The course in chemistry usually begins with a part which is intended to be introductory and is not considered a portion of the systematic presentation of the subject. Here an attempt is made to bring the attention of the pupil to the various types of chemical change, the characteristics of chemical action and the habits he should form and the methods he should adopt in doing chemical work.

The elementary study should begin with the more familiar forms of matter and familiar phenomena should be selected. Unfamiliar facts must, at first, be closely related to those which are familiar. To the beginner chemistry is a strange subject, dealing almost entirely with unfamiliar materials, and it can never be made interesting to the majority of pupils till it becomes related to those facts which are familiar, or till it is given a tinge of human interest. We should not build a high fence around our subject that will shut off all view of the world outside and its chemistry, but on the other hand, we should not be led into digressions by attractive and familiar subjects which might interfere with the systematic teaching of the science.

The usefulness of instruction in chemistry can be very much increased by the employment of illustrations from things outside the laboratory. The sole preparation for life is received by the great majority of pupils in the secondary schools and the teacher of chemistry should not be unmindful of his responsibility. It is useless to claim that chemistry is a study of real things and not simply a disciplinary subject, unless we can show that it is so. Excursions should be made to factories where chemical processes are employed and pupils may be asked to write up reports of their observations and show their relation to the facts gained by study and laboratory investigation. Interest may also be added to the special subject of study by reference to the life and work of the chemist whose name is associated with it. In this way the pupil will be put in touch with the history and literature of the subject.

These various forms of outside illustration do not involve a loss of time, for they serve to fix the points of real chemical value in memory while they lend added interest to facts that might otherwise seem dry. Another advantage of this plan is that a means is offered of continually relating the subject to geology, physics and biology which will show the student the interrelation of all science and will also prove a valuable aid if these subjects are to be taken up later.

With regard to the order in which the subject may be taken up, three somewhat distinct ways may be mentioned. We are thus called on to decide which is best suited to any given group of students. One order proceeds by selecting common materials whose physical properties are most familiar. This order would confine the work to solids, excluding work with gases so far as possible. A second order of treatment begins with familiar materials, but is not restricted to materials familiar because of their physical condition. This order would early include the study of air and the properties of oxygen, passing as rapidly as possible to the theory. This method is more systematic and has less of the nature study idea. In the third order the subjects for study are introduced in such a way as to conform to the historical development of the subject, and the theory is distributed at convenient intervals.

Textbooks are published which illustrate each of these methods of treatment and each no doubt has its advantages. The degree of advancement of the pupil should determine largely which method is most suitable. If chemistry is to be taught to first year students, the nature study plan would no doubt give the best results, but if the subject is to be given during the last years of the course the work might with profit be made to follow one of the other plans. In choosing a textbook and deciding on the order of presentation the teacher must have in mind the degree of maturity of the pupils and the end to be accomplished.

The course should be designed in the interests of the pupil, without reference to whether he is going to college afterward or not. The knowledge of formal chemistry gained in a high school can be of little use, but if the subject is so presented that it develops habits of self-reliance, creates ability to reason surely about the causes of physical phenomena and teaches the pupil to devise means to accomplish definite ends, it will prove invaluable.

Chemistry at first was taught in the high school almost entirely by means of a textbook, supplemented more or less by illustrative experiments. But with a broader conception of the science the textbook method began to give way to the laboratory method till now pupils have ceased to read and listen to statements of facts and theories and have begun to work and think. The laboratory however should not become the only means by which a knowledge of chemistry is gained. While some phases demand experimental treatment others may best be developed by demonstrations. The laboratory should be made the foundation on which all instruction rests, but the work done there should be closely correlated with the subject as presented in some good textbook, otherwise the pupil will lack fulness in knowledge of the subject and will fail to get a definite grasp of the relations of the parts of the science. There will be hardly a chemical change of which the pupil can make a complete study and, in order to gain the necessary information for reaching the conclusions to which his experiment points, it will be necessary to consult books. While the laboratory work is real it is often incomplete. The practical work in the laboratory and the study of the textbook should go hand in hand.

There is nothing magical about a laboratory as a teacher of chemistry any more than about a Latin room for the teaching of Latin. It is the constant presence and supervision of the teacher, coupled with continual questioning, that can keep the work up to the level of an intellectual exercise. Used as the laboratory sometimes is, it is little better than the old illustrative method. It is not a magnified kindergarten where pupils may seek relief from the brain fag induced by their other studies. Its tasks are real and inspiring, intellectual and manual. Its educational value depends on the development of skill in manipulation, of correct habits of observation and recording results and of the real spirit of scientific thought.

To get the greatest amount of profit from laboratory work the principles there investigated must be driven home by careful questioning, numerical problems, written reviews, brief lectures, excursions, essays and collateral reading. The work should be so conducted that the pupil will not get the idea that the laboratory is simply a place where he weighs and measures.

The quiz is of great value as a supplement to laboratory instruction, as it enables the teacher to determine the individual experience of the pupil, to locate his particular difficulties and to enable him to draw out much that was unheeded at the time, but is called out by questioning. The statements of the textbook are also in this way related to the laboratory work and thus they are prevented from becoming two separate things. The quiz also brings out the generalizations of the science from facts observed in the laboratory and enables the teacher to point the application of these to the solution of chemical questions and to the experiences of everyday life.

Laboratory work should not resemble a personally conducted tour of the subject, covering the greatest amount of ground in the shortest possible time, but should be made intensive rather than extensive. A thorough knowledge of a small portion of the subject gives greater power to master other parts than is gained by passing rapidly from group to group of things which are less closely related. It is the superficial treatment of chemistry in the high schools that prevents the recognition of such work by colleges and requires that the student on entering take up the subject from the beginning.

The aim of a high school course in chemistry is not to impart a definite amount of chemical information, to require the performance of a fixed number of experiments or to make of its students finished chemists. The real object is to develop a love for truth, to strengthen the mental power for logical reasoning and to cultivate the habit of experimental observation. If, at the same time, the work furnishes results which are of real value as an addition to the student's stock of useful knowledge so much the better.

DESIRABLE CHANGES IN THE REGENTS COURSES IN CHEMISTRY AND PHYSICS

BY G. M. TURNER, MASTEN PARK HIGH SCHOOL, BUFFALO

It is with considerable reluctance that I take up the consideration of changes in the present courses in chemistry and physics of the Regents *Syllabus*, because I recall the effort put forth by this association 4 years ago and 5 years ago, to assist the Regents in putting forward acceptable laboratory courses in chemistry and physics. Certainly the work of Professor Hallock and his committee in preparing the present laboratory course in physics, and of Professor Woodhull in presenting the basis for work in chemistry, is not to be passed over lightly. Naturally I hesitate to criticize the work of these men. I can only feel justified in so doing by recalling that time changes the viewpoint of us all and that the aims of a course in physics or chemistry for the secondary schools of New York are, and ought to be, different today from what they were 5 years ago. The present courses have accomplished much in encouraging laboratory work in schools where 5 years ago but little or no laboratory work was done. They have also aided in creating a sentiment in favor of full year courses where before only one half year's work was done. Since the past 5 years have made an advance in our work in chemistry and physics, it is but proper that we so plan that the next 5 years may see a still greater advance in our methods of presentation and better work accomplished.

If I interpret rightly the trend of the more recently published chemistries and physics, intended for secondary school work, there are two things at which all the better books aim, viz, the cultivation of a scientific attitude of mind in the pupil and incidentally the teaching of utilitarian facts. Of course I do not wish to be understood as referring to any attempt to make chemists or physicists out of these boys or girls, but to inculcate into their manner of thinking and manner of work, a spirit that is in keeping with the best scientific training. Along with this training to furnish these young people facts bearing on everyday processes and phenomena. That this situation is a reality and not a phantom to be reasoned or imagined away, will, I think, be conceded by any one who carefully considers the character of the books used and the nature of the instruction given, by the best teachers in our secondary schools of today.

If this combined scientific-utilitarian viewpoint is conceded, how do our present Regents courses in physics and chemistry fit with the same? Apparently, the courses and examinations come far short of meeting this situation. I grant it is a comfortable thing for the teacher and pupils to feel that so long as the school is on the approved list, the pupils are to get their credit, provided the proper time has been spent in the laboratory. But it is not enough to say that 20 credits of the examination shall be given on account of the equipment of the school and the fact that a pupil has spent so many hours in the handling of this equipment. Such a system does not put the proper responsibility on the pupil for his utilization of this equipment, or test his use of the hours spent in the laboratory.

If you will pardon a personal allusion to the subject, I may say that while the work at Masten Park High School has met the approval of the Regents inspectors, and it has been our endeavor at Masten Park to merit this approval, I can not but appreciate the situation and experience the feeling that the present system brings. I have frequently realized that quite a few of my pupils have a wrong viewpoint of their laboratory work. To some, the work is for the purpose of quickening the eye, the hand and the reasoning powers. To others, the work is looked on as something necessary to be carried out in order to make their final examination less troublesome.

By this I would not wish to be understood as advocating that the examinations be made more difficult, but that the whole viewpoint be so changed that the pupil will be stimulated in his laboratory work to approach the examination from a different standpoint. To do this it is my belief that the examination should not merely test the students' memory of facts, or ask for the description of an experiment illustrating a law, where the pupil may furnish a hypothetic experiment, either created by his imagination or crammed from a textbook, the real nature of which experiment is entirely unknown to him. An examination should properly test the actual manipulative work of the pupil, his mental processes and his attitude of mind toward the subject, by requiring his description of the necessary precautions to make his experiment a success; how to proceed in order to avoid certain errors of work or errors of judgment; to give satisfactory reasons why the temperature and pressure conditions should be taken into consideration in working with gases; why some experiments necessarily produce greater errors of result than do other experiments or other parts of the same experiments; why utilizing a piece of apparatus in one way, rather than in another way similar to it, will yield better results. Such tests as these tend to stimulate the training of the pupil along right lines and it is proper that our Regents *Syllabus* and examination should encourage this class of work and the examination should be based on the same.

Perhaps I may be accused of laying too much stress on the examination side of the problem and I may be told as our principal periodically tells the pupils of the Masten Park High School: that the Regents examination is only an incident and that the term work is the thing that counts. Grant this to be true, yet the child is rare—the grown child too for that matter—who approaches an examination with a sense of relish and delight. No matter how well prepared a pupil may be, the element of uncertainty about an examination coming from a source outside of the school produces a disturbance in the equilibrium of the child. This disturbance is usually in the inverse ratio to the preparedness of the pupil, and with nervous children frequently varies inversely as the square of the preparedness. It is for this reason that I would advocate that the examinations in chemistry and physics be less of a memory test and more of a deduction test of the work done by the pupil in the laboratory.

But I would be promptly told that there are, and must be, many schools in New York State that are unable to do much, if any, laboratory work, both from lack of equipment and from the qualifications and excess work of the teacher; and that such an examination would be unfair to these schools. The answer to this brings me to one of the most radical changes I would suggest for the next 5 years.

It has been my belief for some time that it is impossible for the Regents to issue one examination in physics and one examination in chemistry that will properly deal with the work done in the different high schools of the State. When one considers the radical difference between the possibilities for work in the high school of a small town, where the teacher of physics and chemistry must of necessity be handicapped, not only by lack of proper room, insufficient equipment and the necessity of teaching three or four subjects beside physics and chemistry, and the possibilities for work in a high school like this Syracuse building, the difficulty becomes very apparent. Either the stronger or the weaker school is the sufferer. Surely the needs and possibilities of the smaller school should be as carefully considered as the needs of the larger school. With one examination and one syllabus, either too much is asked of the one or not enough of the other.

To relieve this difficulty I would suggest that the Regents outline two courses of work in physics and two courses of work in chemistry. I would also suggest that two examinations in each subject be issued at each examination date. As a consequence, the schools of the State would be divided, so far as physics and chemistry are concerned, into two groups; one group taking one examination and the other group taking the other examination. It should be within the jurisdiction of the Regents inspector to decide whether a given school, by its possibilities for work and its desires, should be placed in the one or the other group.

By this means more work and work of a different class, might be expected from the one group than from the other. Naturally the amount of laboratory work in the one group would not only be greater in quantity, but contain a greater number of quantitative experiments, than would be expected from the other group.

The examinations would in the one case be somewhat like those now given, based largely on the textbook work; in the other case less of mere memory work based on the accumulation of facts and definitions, might be expected, and more questions based on processes employed in laboratory work, be found.

In regard to the practicability of the two course scheme, it is quite possible our friend Cobb, who I know delights in work, may tell you that the extra energy necessary to plan two outlines of work and two examinations, is easily cared for, but that the dividing of the schools of the State into groups where results of a different degree are offered, will interfere with the present system of requiring the different schools to come up to a given standard, in order to be acceptable. To this I would say that while the fact of even gradation of the school work has been one of the established systems of the Regents, it does not follow that it always need continue so to be. The separating of the high schools of a state into grades, requiring not only different amounts of work, but work of a different quality from some schools than that expected of other schools, is being tried and apparently finding favor in other states. It is certainly perfectly logical that more should be expected of the school with five talents than from the school possessing only two or one talent.

Assuming the practicability of the two course system, what should be offered in each system? It would seem advisable that the more extensive and intensive of our courses should be of such a nature, that the ground covered would be suitable for admission to the average college of the country, and embrace work similar in character to that laid down by the College Entrance Examination Board in its last *Definition of Requirements*. As this syllabus is of a recognized merit and standard among the colleges, similarity of work to this course, in our schools that fit for college, would be of great value, not only in preparing our boys and girls for college but in giving those who do not go to college an excellent course in the training we seek to give them.

Such a syllabus as that above mentioned would modify our present syllabus in several respects:

1 In the chemistry course it would introduce a fair amount of quantitative work. The present syllabus has practically no work of this nature.

2 In physics, the course above mentioned would omit some of the experiments that the experience of the past 3 years shows to be too difficult for pupils of the secondary schools.

3 It would shift some of the experiments laid down as laboratory experiments, to the lecture table.

4 It would introduce several experiments not now touched on, particularly with reference to the construction and operation of the dynamo and motor.

5 It would lay more emphasis on certain portions of the textbook work and less emphasis on other portions of the same.

6 It would do away with the use of parts 1 and 2 in both physics and chemistry. It is possible, there was a time when the division of physics and chemistry into parts 1 and 2 was desirable and it was proper that an examination with credit be given in each part. It is my belief, however, that such a time has passed and that all the schools entitled to any credit for work in physics or chemistry, should, in a more or less thorough degree, complete the subject. I can not believe that good work, even in our less favored schools, is fostered by allowing credit for work done on mechanics and heat as distinguished from sound, light and electricity. Neither do I see why two thirds of the work of the year as now arranged for in chemistry should be called part 1 and receive distinct credit from the remaining one third that is as closely connected to the second third as was the first one third. Surely there is no logical distinction or chemical division that puts all the metallic elements and all the nonmetallic elements, except carbon, phosphorus and arsenic, into one group, as part 1, and sets the three above-mentioned elements in a separate group by themselves, as part 2. Such a grouping leaves a false impression with the pupil and renders an examination where one half the questions must be selected from the three elements and their

compounds, and one half the questions selected from the other 22 elements and their compounds, decidedly unbalanced. It would certainly seem that the terms, part 1 and part 2 as at present used, have outlived their usefulness and might safely be dropped.

As a course and an examination for those schools that feel unable to do the work of the more strenuous course, I would suggest a course having the same aim of training the pupil in right methods of thinking and work, as the previously discussed course, but make the work less comprehensive, with fewer required laboratory experiments. These experiments might naturally be based on as simple apparatus as possible, where satisfactory results can be obtained. Such a course would keep the same aims in view as the other course, but require only such work as the possibilities of the smaller school will allow.

It would thus seem that by making the courses in chemistry and physics for the next 5 years, as far as possible, with a view to cultivate the scientific attitude of mind, coupled with the necessary facts to make this training possible, and by fitting the examinations and work to the possibilities of the individual school and the requirements of our colleges, a standard would be set that would be beneficial in its effects.

Tuesday afternoon

GENERAL SESSION

ALCOHOL AND NARCOTICS

SCHOOL INSTRUCTION REGARDING THE EFFECTS OF ALCOHOLIC DRINKS AND TOBACCO

FINAL REPORT OF THE COMMITTEE

PRESENTED BY BURT G. WILDER, CORNELL UNIVERSITY

Irving P. Bishop, Chairman, State Normal School, Buffalo
Burt G. Wilder, Cornell University
Gaylord P. Clark, Syracuse University
Eli H. Long, University of Buffalo
James E. Peabody, Morris High School, New York city

A Report of the Physiologic Subcommittee of the Committee of Fifty

B Alcohol: is it Ever a Food or Always a Poison?

C Effect of Alcohol on the Various Organs and Functions of the Body

D Physiologic Effects of Tobacco

E Teachers and the New York State Law

F The Connecticut law

G Appendix. Modifications of the Preliminary Report of 1901

The New York State Science Teachers Association, at its meeting in December 1898, appointed a committee of five "to ascertain and report what is definitely known regarding the physiological effects of alcohol and narcotics on the human body, and to recommend suitable methods for teaching the same in the schools of this State." After three years of discussion and correspondence, this committee presented to the association a preliminary report, the outline of which was as follows:[1]

1 A comparison of textbooks used in medical colleges and in the public schools of the State of New York

2 Opinions of the committee regarding the effects of alcohol

3 Opinions of teachers regarding present methods of teaching physiology

4 Conclusions of the committee from the preceding investigation

5 Recommendations of the committee

At the 1901 meeting mentioned above it was voted that our committee be asked to continue its work and to make its final report at a subsequent meeting. As the work has progressed the members of this committee have been more and more impressed with the magnitude and difficulty of the task. Soon after the publication of our preliminary report, however, we were given access to the advanced sheets of the most important of all modern books relating to the alcohol question, *The Physiological Aspects of the Liquor Problem* (two volumes, octavo, p. xxii, 396 and 379. Houghton, Mifflin & Co. Boston and New York, $4.50).

To this work of the physiologic subcommittee of the Committee of Fifty we are indebted for a considerable portion of the material contained in sections A, B and C.

---

[1] This report was published in High School Bulletin 17 of the University of the State of New York and in the *Educational Review*, June 1903.

A REPORT OF THE PHYSIOLOGIC SUBCOMMITTEE OF THE COMMITTEE OF FIFTY

The Committee of Fifty was organized in 1893, "in the hope," as stated in the announcement, "of securing a body of facts which may serve as a basis for intelligent public and private action. It is the purpose of the committee to collect and collate impartially all accessible facts which bear on the problem, and it is their hope to secure for the evidence thus accumulated a measure of confidence on the part of the community which is not granted to partizan statements." In brief it is a committee for the impartial investigation of facts. It is composed of able representative men of various religious, political and social views. Its president is the Hon. Seth Low, and the several subcommittees are made up of men eminent in their several departments.

The Physiological Aspects of the Liquor Problem was published in June 1903. It constitutes the fourth of the preliminary reports on different aspects of the liquor problem prepared and published under the authority of the Committee of Fifty as a basis for the "general discussion that may in the future be undertaken by the committee as a whole." The subcommittee consists of John S. Billings, *chairman and editor of report,* New York Public Library; W. O. Atwater, Wesleyan University; H. P. Bowditch, Harvard Medical School; R. H. Chittenden, Yale University, and W.H.Welch, Johns Hopkins Medical School. Following the report of the subcommittee as a whole to the Committee of Fifty, come nine special reports, viz, The Present Instruction on the Physiological Action of Alcohol (136 pages), by H. P. Bowditch and C. F. Hodge; The Influence of Alcohol and Alcoholic Beverages on Digestion and Secretion (171 pages), by R. H. Chittenden; Data Relating to the Use of Alcoholic Drinks among Brain Workers in the United States (32 pages), by J. S. Billings; Relations of Drink Habits to Insanity (18 pages), by J. S. Billings; The Influence of Alcohol on Growth and Development (20 pages), by C. F. Hodge; The Influence of Acute Alcoholism on the Normal Vital Resistance of Rabbits to Infection (19 pages), by A. C. Abbott; A Critical Review of the Pharmacological Action of Ethyl

Alcohol with a Statement of the Relative Toxicity of the Constituents of Alcoholic Beverages (168 pages), by J. J. Abel; The Nutritive Value of Alcohol (180 pages), by W. O. Atwater; the Pathological Action of Alcohol (26 pages), by W. H. Welch.

The work above described has been carefully studied by your committee. Notwithstanding minor defects and the notable inadequacy of the index, *The Physiological Aspects of the Liquor Problem* attests the learning and skill of the collaborators and the impartiality of the committee. In our judgment it is the most complete, the most scientific, and the most trustworthy consideration of this phase of the liquor problem that has ever been published. It constitutes at once the most extensive and the most powerful of temperance tracts.

Holding this opinion of the work your committee suggest that it be placed in the libraries of all the public schools of the State, and that perfect freedom to consult it be accorded not only to teachers but to all pupils as well.

Physiological Aspects of the Liquor Problem begins, as has been said, with the joint report of the subcommittee to the Committee of Fifty. Their general conclusions are stated on pages xix–xxii. Probably no two men, or bodies of men, would summarize the volumes in just the same way, and your committee think the conclusions might be advantageously modified or amplified in certain respects. In the main, however, they seem to us so moderate, so sound, and so warranted by the known facts that we print them in full:

PHYSIOLOGICAL ASPECTS OF THE LIQUOR PROBLEM

INVESTIGATIONS MADE BY AND UNDER THE DIRECTION OF W. O. ATWATER, JOHN S. BILLINGS, H. P. BOWDITCH, R. H. CHITTENDEN AND W. H. WELCH, SUBCOMMITTEE OF THE COMMITTEE OF FIFTY TO INVESTIGATE THE LIQUOR PROBLEM. OCTAVO, 2 V., P. XXII AND 396, AND 379. HOUGHTON, MIFFLIN & CO. 1903. I, P. XIX-XXII.

The object which the committee had in view was, as indicated above, to ascertain the effects of the occasional or habitual use of a moderate quantity of wine, beer, or spirits upon the health and working powers of man. As to the term "moderate quantity," the committee accepted the use of this phrase among English physicians as formulated by Anstie, viz, the equivalent of one and one half (1½) ounces of absolute alcohol per day, or about three (3) ounces of whisky, or half a bottle of claret or Rhine wine, or four (4) glasses of beer; it being understood that this is to be taken only at lunch and dinner, and that the whisky is to be well diluted.

Conclusions

As the result of their investigations and deliberations the committee have arrived at the following conclusions:—

1 The effects of a moderate or occasional use of alcoholic drinks upon man differ greatly in different individuals, and depend on constitutional peculiarities, age, occupation, climate, etc. Most of them, especially the ultimate effects upon health, can not be ascertained with much accuracy by experiments upon animals or upon a few men for short periods of time.

2 The results of the many experiments of this kind which have been made up to the present time appear to us to be fairly stated in the papers by Professors Abel, Atwater, Chittenden, and Welch, printed with this report. The committee agree upon the general and more important conclusions of these papers after careful examination and personal conference.

3 We have no trustworthy data as to the proportions of total abstainers, occasional drinkers, regular moderate drinkers, and positively intemperate persons in the United States. From such information as we have, it seems to us probable that of the adult males in this country, not more than 20% are total abstainers, and not more than 5% are positively intemperate in the sense that they drink in such excess as to cause evident injury to health. Of the remaining 75% the majority, probably at least 50% of the whole, are occasional drinkers, while the remaining 25% might perhaps be classed as regular moderate drinkers.

With the majority of these occasional drinkers, and with many of the regular moderate drinkers, such as those whose drinking is limited to a glass of wine or two, at dinner, no especial effect upon health seems to be observed either by themselves or their physicians, but in some cases the drinking is certainly harmful, while in a few it is thought to be beneficial.

4 Among the leading brain workers of the United States, as indicated by the statistics on page 313, volume 1, of this report, it would appear that about 80% use alcoholic drinks occasionally or regularly in moderation. The opinions of these men as to the effects of alcoholic drinks in general have little or no scientific value, but are of interest as showing that the use of such drinks to stimulate mental effort gives, on the whole, bad results.

We believe that such occasional or moderate use is most likely to be harmful to young persons, and mainly because of the danger of its leading to excess; and that the cases where it is useful, otherwise than in disease, are mostly those of persons over 50 years of age and when alcoholic beverages are taken with the last meal of the day.

5 The special effects of alcoholic drinks are mainly due to the alcohol they contain, and, so far as these effects are harmful, the other substances are of comparatively small importance. Fine old whiskies and brandies are nearly as likely to produce injurious effects as are the cheaper grades of the same liquors, if taken in the same quantities. Some wines appear to delay or check the digestive process by reason of other constituents than alcohol, as is shown by the experiments of Professor Chittenden with regard to the effects of claret. In general the injurious effect of an alcoholic drink is in proportion to the amount of alcohol contained in it, which seems to be the chief reason why wine and beer are less injurious than distilled liquors.

6 The question as to whether a given alcoholic drink is a food or a poison is one which can not be answered by any short comprehensive formula. In moderate quantities, beer, wine, and diluted whisky are, in a certain sense, foods; but they are seldom used for food purposes, but mainly for their peculiar effects on the brain. In large quantities, and, for a few persons of peculiar temperament, even in moderate quantities, they are poisons.

7 Alcoholic drinks in moderate quantities may be useful as restoratives in fatigue after the work is done, but they often produce a depressing and even harmful effect when used just before or during physical or mental labor. They are useless as preventives of infectious or contagious disease; on the contrary, they appear to lessen the power of the organism to resist the effects of the cause of such disease.

8 The report prepared by Dr H. P. Bowditch of Boston, and Prof. C. F. Hodge of Worcester, Mass., on the present instruction on the physiological action of alcohol, is believed to be a correct representation of the facts, and to justify the conclusion that much of the methods and substance of the so called scientific temperance instruction in the public schools is unscientific and undesirable. It is not in accord with the opinions of a large majority of the leading physiologists of Europe as shown by the statement printed on page 18 of volume 1 of this report. This appears to us to be a matter of grave importance.

9 It does not seem to this subcommittee desirable to attempt to give systematic instruction to all children in the primary schools

on the subject of the action of alcohol or of alcoholic drinks. To older children, and especially those in the high schools, it does seem proper that instruction should be given as to the principal facts known about the use and effects of alcoholic drinks, the sociological and especially the ethical relations of the subject, the means which have been tried to prevent the evils resulting from alcoholism—and the results,—the object being to enable them to form an intelligent opinion upon the whole subject, especially to distinguish between mere assertions and scientific evidence.

10 This teaching should not be made a special, isolated matter, but should be a part of some elementary instruction in physiology and hygiene, and all that is really useful and desirable can be given in a brief time, equivalent to a few lessons of an hour each, following the lessons on food. In these lessons might be taught what the ordinary alcoholic drinks are, and of what and how they are made, the difference between simple fermented drinks, like beer and wine, and distilled liquor, such as whisky, the nature of the so called "temperance drinks," and the general effects of alcohol as a stimulant and as a narcotic. It might be taught that while in moderate quantities beer and wine may be, in a certain sense, a food, they are a very imperfect and expensive kind of food, and are seldom used for food purposes; that they are not needed by young and healthy persons, and are dangerous to them in so far as they tend to create a habit; that in certain cases of disease and weakness they are useful in quantities to be prescribed by physicians; that when taken habitually it should be only at meals, and, as a rule, only with the last meal of the day, or soon after it, and that alcoholic drinks of all kinds are worse than useless to prevent fatigue or the effects of cold, although they may at times be useful as restoratives after the work is done.

It should also be taught that alcoholic drinks are almost always a useless expense, that their use in excess is the cause of much disease, suffering, and poverty, and of many crimes; but that such use is sometimes the result, rather than the cause, of disease.

It should not be taught that the drinking of one or two glasses of beer or wine by a grown up person is very dangerous, for it is not true, and many of the children know by their own home experience that it is not true.

[*Signed*] JOHN S. BILLINGS, *chairman*
W. O. ATWATER
H. P. BOWDITCH
R. H. CHITTENDEN
W. H. WELCH

B ALCOHOL: IS IT EVER A FOOD OR ALWAYS A POISON?

Various constituents of liquors. Alcoholic beverages owe their attractiveness in part to ethers and flavoring matters contained in them. They also contain small portions of fusel oil and other lighter alcohols. It has been popularly believed that the deleterious properties of certain distilled liquors were largely due to these latter ingredients. Abel's results prove very clearly that neither the flavoring matters nor the lighter alcohols have much influence in producing intoxication or the other bad effects of liquors. Ordinary ethyl alcohol is the principal intoxicating agent and the other impurities may be neglected altogether as the source of the drink evil. So far as quality is concerned the best whiskies are as capable of producing intoxication as the poorest. The principal adulterations of liquors are water, flavoring extracts and coloring substances not injurious to health. [Physiological Aspects of the Liquor Problem, 2: 4-34]

Alcohol as a possible source of energy. In what part of the body alcohol is oxidized is not known, nor is its action within the body yet fully understood. Stated broadly, our knowledge indicates that in occasional small quantities the cells of the body oxidize it and dispose of it without demonstrable harm to the tissues. Also that the energy liberated is available for the same purposes as that derived from the oxidation of other foods. The composition of alcohol is similar to that of sugar and starch, and the logical inference is that it may serve the same purpose in the body. For a long time it was taught in the school texts that this was not true, but that the greater part of the alcohol ingested was excreted unchanged. It has now been demonstrated beyond doubt that alcohol to the extent of about 2 ounces in 24 hours is oxidized as completely (90 to 96%) as other foods. Since the oxidation of a substance liberates energy, alcohol is regarded by many as a true food substance. On the other hand, it is claimed that alcohol produces other deleterious effects which more than counterbalance the good, and render it valueless as a food. Those who favor this view contend that a true food must always nourish the body without harming it.

Alcohol as a poison. If too much alcohol be taken at once, or if the quantity taken during 24 hours be much larger than 2 or 3 ounces, harmful results may follow. In the minimum quantity indicated it is believed that oxidation of alcohol is as complete as with sugar or starch. If the quantity of alcohol is greater than the body can thus dispose of, the evidence at hand indicates that the unoxidized portion, circulating in the blood, produces poisonous effects on the cells. In this way alcohol acts as a poison. The nerve cells seem specially susceptible to its influence, the alcohol affecting them like a narcotic or anesthetic. In excessive doses it may act as a poison, producing serious nervous and functional disturbances, or even death. The quantity which may produce deleterious results depends largely on the individual, some persons being much more susceptible to its influence than others. There is no standard by which the intoxicating or poisonous dose may be always known.

It has been claimed that since alcohol in large quantities acts as a poison it should always be classed with poisons. Also, that since the structure of one alcohol molecule is like that of any other, the smallest quantity must also be poisonous. On the other hand it is contended that a substance is poisonous or not according to the quantity used; that in small quantities a substance may be harmless or even beneficial but in large doses may produce disease or death. Much of the controversy on this point has arisen from lack of concord as to definition. Abel states the matter as follows:[1]

> According to scientific usage any substance is called a poison which, when incorporated into the blood, or even when applied to the mucous membranes and other surfaces, in relatively small amounts, causes disturbance in any function of the body. It is difficult to give a satisfactory definition of a poison.
>
> Without entering on a long definition of the term, we may remark that, without exception, all poisons are capable of being taken without *demonstrable* injury in a certain quantity, which is, for each of them, a special though sometimes very minute fraction of their toxic or fatal dose. There is no substance which is always and everywhere a poison. The term is relative; condi-

---

[1] Physiological Aspects of the Liquor Problem, 2:5.

tions and circumstances of various kinds must always enter into the conception of the term. No one would maintain, for example, that a cup of delicately flavored tea is in any sense injurious or poisonous to the average healthy adult. And yet caffein, the active principle of this cup of tea, is a poison as surely as is alcohol. When used in a strictly scientific sense, the term applies with equal propriety to a number of other food accessories, as coffee, pepper, ginger and even common salt. In this last instance the toxic dose is large.

While agreeing in the main with Abel, Hewes[1] classes alcohol as a poison because that is one of its most characteristic properties. To the child, however, who gets his ideas from the school text, the word poison suggests a substance which always produces immediate bodily harm.

From what has been said it is seen that alcohol may act in the body in small quantity as a food and in larger quantity as a poison. While its food value is conceded, it is not claimed that it is an economic food suited to general use. As a source of energy, alcohol costs several times as much as an isodynamic quantity of ordinary food.[2] In certain forms of disease, as in pneumonia or

---

[1] Hewes, H. F. M.D. Value of Alcohol as a Therapeutic Agent in Medicine. Bost. 1902. Damrell & Upham. p.4-5.

[2] Assume 1 pt of beer to weigh 1 lb.

Assume cost of beer (1 pt) to be 5c.

Assume cost of 1 lb of sugar to be 6¼c.

Assume cost of 1 lb of butter to be 30c.

Assume cost of 1 lb of bread to be 7c.

1 lb of bread contains .078 lb available protein and 1200 calories energy.

1 lb of beer contains no available protein and 220 calories energy.

Accordingly 5.45 lbs of beer furnish the same available energy as 1 lb of bread.

The beer would cost 27.5c or about four times as much as the bread.

1 lb of sugar contains no protein and 1755 calories energy.

1 lb of beer contains 220 calories energy. Therefore 8 lbs of beer would furnish the same energy as 1 lb of sugar. The beer would cost 40c or about 6½ times as much as the sugar.

1 lb of butter furnishes .01 lb available protein and 3410 calories energy.

1 lb of beer furnishes no protein and 220 calories. Therefore 15.5 lbs of beer would furnish the same available energy as 1 lb of butter.

The beer would cost 77.5c or about 2.6 times as much as the butter.

The bread contains considerable protein. Disregarding that, the available energy furnished by beer costs 4 times as much as the same amount furnished by bread; 6½ times as much as that from sugar; and 2.6 times as typhoid fever, where the patient can not take ordinary food, many physicians claim that alcohol may be used to advantage in quantities which under ordinary circumstances would intoxicate, while some, on the other hand, deny for it any great value.[1] Since it does not require digestion, it acts in such cases as an emergency food tiding over a period of stress. To people in health, however, alcohol is unnecessary and its use is constantly attended with danger of forming the alcohol habit. It is proper to say, however, that nearly all of the above statements are disputed on more or less eminent authority.

The committee believes that the question of the food value of alcohol which has been the subject of so much controversy should have no special prominence in public school physiology. A limited number of people use alcoholic liquors as tea and coffee are used, as food adjuncts to stimulate the appetite, to promote good fellowship or to highten the pleasure of the meal. Comparatively few Americans use them in the place of ordinary foods. Unless attention were drawn to the subject through the school texts, most children would never know that alcohol is ever thought of as a food.

C EFFECT OF ALCOHOL ON THE VARIOUS ORGANS AND FUNCTIONS OF THE BODY

Salivary digestion. The work of R. H. Chittenden and his assistants has given us very definite information regarding the effect of alcoholic liquors on digestion and secretion.[2] When introduced into the mouth, alcoholic liquors produce a marked but transitory increase in the flow of saliva, which has greater digesting power than saliva secreted under ordinary conditions. This increase

---

much as that from butter. [Physiological Aspects of the Liquor Problem. 2:342]

It must always be understood, however, that the action of alcohol on tissue is complex and that other factors in its action may hinder the realization of the full potential of its food value.

[1] Physiological Aspects of the Liquor Problem. 2:210; Hewes, H. F. M.D. Value of Alcohol as a Therapeutic Agent in Medicine. Bost. 1902. Damrell & Upham. p.21-22; *and* Anstie, F. E. Stimulants and Narcotics. Phila. 1865. p.375-85.

[2] Physiological Aspects of the Liquor Problem, 1:137 et seq.

is thought to be due to local stimulation of the mucous membrane of the mouth. With active saliva not greatly diluted the presence of 5% of absolute alcohol, equal to 10% of proof spirit, may lead to a slight increase of digestive power. Larger quantities of alcohol cause retardation of starch digestion, but even 10% of absolute alcohol causes only a slight retardation. The action of the alcohol, however, seems to be modified somewhat by the presence of other substances held in solution in it. The principal digestive use of saliva is to change insoluble starch into soluble sugars. This digestion can take place only in an alkalin fluid; hence wines and other liquors containing acids retard the digestion of starchy foods in the mouth, as do vinegar, pickles and salads, because they destroy the alkalinity necessary for the action of the ptyalin of the saliva.

Gastric digestion. As to their influence on digestion in the stomach the same investigators find that alcoholic fluids have a variable effect according to the strength of alcohol present. In strong solution they usually increase both the flow of gastric juice and its percentage of acids and solids. Hence the digestive fluid secreted under the stimulus of alcohol has strong power to digest proteids, like meat and eggs. The time required for stomach digestion under these conditions is not greatly changed—if anything, it is slightly increased. Chittenden and his assistants found that alcohol was rapidly absorbed from the stomach, more quickly than water. They conclude, therefore, that the possible delay of digestion caused by alcoholic fluids would be of shorter duration than the effect of its stimulation on secretion, and, consequently, that alcoholic fluids, where the proportion of absolute alcohol is less than 5 to 10% of the stomach contents, do not markedly influence the time of gastric digestion. Above that proportion, digestive action is retarded. Large amounts of sherry wine and of malt liquors produce a retardation of digestion out of proportion to the quantity used. The retardation is probably due to the extracts dissolved in the liquor. The retardation, however, is no greater than that produced by excessive quantities of tea or coffee. Robert Hutchinson,[1] however, holds that alcoholic liquors in small or moderate quantities shorten the time of digestion, but in intoxicating doses interfere with it through its action on the nervous system.

It is proper to remark here that there is not complete concord among authorities as to the effect of alcohol on gastric digestion. Hewes, using Chittenden's data,[2] concludes that the presence of spirits in the stomach markedly retards digestion. Other competent investigators are about equally divided in opinion whether they increase or retard digestion and absorption. There is much evidence, however, that by their pleasant taste and stimulating effect they, in many cases, promote appetite and thus indirectly aid in the progress of digestion.

Even if alcoholic liquors do slightly retard digestion, which does not appear to be proven, the fact can have little practical importance. Except to brain workers and invalids who may need to get food out of the stomach and into the blood as quickly as possible, a half hour's time, more or less, in the digestion of a meal can not have a marked influence on health. On the contrary slow digestion may be desirable. The laborer chooses for his fare, not bread and milk which are both nourishing and quickly digested, but pork and corn bread because experience has shown that such food not only maintains strength, but defers the sensation of hunger. Very few of us would be deterred from eating rich desserts because the time of digestion would thereby be lengthened by a half hour. We can not see, therefore, how the knowledge that alcohol impedes digestion could be instrumental in keeping young people temperate.

Pancreatic digestion. According to Chittenden, experiments outside the body indicate that alcoholic beverages delay the digestion by the pancreatic juice both of farinaceous foods and of proteids more than in the cases of saliva or of the gastric juice; but as alcohol is rapidly absorbed from the alimentary canal it probably exerts little direct influence on the secretion of the pancreatic and intestinal juices or on their digestive action. [Physiological Aspects of the Liquor Problem, 1:249, 301] Zuntz and Magnus Levy also conclude that beer does not diminish the utilization of food by the body. [Physiological Aspects of the Liquor Problem, 1:300]

---

[1] Food and Dietetics. Lond. 1900. p.324.

[2] Hewes, H. F. High School Physiology. 1900. American Book Co. p.107; *see also* Value of Alcohol as a Therapeutic Agent, p.15-16.

Effects on the stomach tissues. From various sources there is evidence that the excessive and long continued use of strong spirits may produce gastritis (inflammation of the stomach). In Friedenwald's[1] experiments with rabbits, with large doses of alcohol, gastritis was sometimes produced but was often absent. In their experiments on dogs, Chittenden, Mendel and Jackson[2] found that alcohol in strength ranging from 3.75 to 16% produced no evidence of irritation or hyperemia, and all traces of hemorrhage were absent. The doses of alcohol, however, were not continued for long periods. There is, however, no good evidence of the production of gastritis in healthy human beings from the occasional or moderate use of alcoholic drinks.

Effect of alcohol on the liver. Since alcohol must pass through the liver on its way to the general circulation we should naturally expect to find here, if anywhere, the most marked evidence of its action. The particular disease of the liver attributed to alcoholic agency is cirrhosis ("gin-drinkers' liver," "hobnailed liver"). It is a disease of middle life and may arise from other causes than alcoholism, as for example, the products of indigestion or hepatic derangement. But it is usually the result of protracted indulgence in strong spirits. Welch says, "The immoderate use of alcohol is the cause of probably over 90% of the cases of hepatic cirrhosis, and some think it is the sole cause." [Physiological Aspects of the Liquor Problem, 2:367]

Relatively speaking, however, cirrhosis is not a frequent disease. Osler[3] cites 71 cases as occurring out of 1000 autopsies held in the Johns Hopkins Hospital. Formad[3] found six cases out of 250 post-mortem examinations on confirmed drunkards who had died suddenly from the effects of alcohol. The mortality from this source, therefore, can not be very great. And while the experience of physicians should have due weight, it is worth noting that the various efforts to produce cirrhosis artificially in animals have yielded very meager results. Friedenwald experimented for 4 years on 120 rabbits, using alcohol daily in quantities sufficient to stupefy the animal for a time varying from three to five hours. Genuine cirrhosis was not produced.[1] Similar results have been attained by other experimenters. Fatty metamorphosis of liver cells by the use of alcohol has been artifically produced, but the condition usually disappears with abstinence. These facts lend support to the opinion held by many that alcohol acts only indirectly in producing cirrhosis, or that other special predisposing or associated conditions must be present in addition to the action of alcohol.

---

[1] Physiological Aspects of the Liquor Problem, 2:354-56.

[2] American Journal of Physiology, 1:164-207.

[3] Practice of Medicine. N. Y. 1899. Appleton.

Effect on respiration. On this subject much remains to be done. The following points appear to be determined with reasonable certainty by Abel.[2]

1 Alcohol is a respiratory stimulant of moderate power for human beings. During a period of an hour or more after its administration it causes an increase in the volume of the air passing through the lungs and in the absorption of oxygen (3.5%).

2 Highly flavored wines, brandy and other alcoholic beverages which contain larger amounts of stimulating esters[3] have a more pronounced action than ethyl alcohol.

3 The stimulating action of alcohol and of alcoholic beverages is greater in the case of fatigued persons than in those who are in nowise exhausted.

4 Increased heat dissipation always accompanies the above-named effects.

The explanation of this is the supposition that alcohol induces loss of heat from the body through the dilation of the superficial blood vessels, and at the same time causes a compensatory increase in the oxygen intake in order that the loss may be made good by an increased combustion.

---

[1] Physiological Aspects of the Liquor Problem, 2:357.

[2] —— 2:116.

[3] "Any compound ether in which both an alcohol radical and an acid radical are present."—*Gould*

Effect on the heart and circulation. As the result of experiments Abel finds that, when introduced into the circulation in moderate doses, and well diluted, with the avoidance of local irritation, alcohol is not a circulatory "stimulant." Under the same conditions it has no direct action on the heart itself either in stimulating or depressing it. It has also, except in unusual circumstances, no general widespread action on the nerves which control the rate and force of the heart beat. It does not act on the muscular wall of the blood vessels (vasomotors), nor on the peripheral terminations of the vasomotor nerves. It acts locally, however, as a temporary irritant on the mucous membrane, and possibly reflexly on the cardiac and vasomotor nerve centers, thus indirectly varying the action of the heart and the caliber of the small arteries (arterioles). This conclusion, however, is not meant to apply when alcohol is used continuously or in large doses. He regards alcohol as always depressant and classes it with anesthetics and narcotics.[1]

In Friedenwald's experiments,[2] fatty degeneration of the muscle of the heart was found in most of the rabbits which died from chronic alcoholic intoxication, but was absent from those which were killed after cessation of the use of alcohol. Other lesions and abnormal conditions were not sufficiently well marked to be attributed to alcoholic agency. It is generally believed however, by physicians, that fatty degeneration of the heart muscle is sometimes the result of excessive but not of moderate use of alcohol.

Effect on the kidneys. In Friedenwald's experiments[3] the evidences of destructive changes in the kidneys due to alcohol were more evident than with other organs, but were not conclusive. In man, large and congested kidneys are found with great frequency in those who drink beer to excess. This is believed to be due, not to the alcohol, but to the extra work of eliminating an excessive quantity of fluid from the blood. Though the experimental evidence regarding the effects of alcohol is not conclusive that from experience leads to the belief that alcoholic excess is injurious to the kidneys.

---

[1] Physiological Aspects of the Liquor Problem, 2:91-92.

[2] —— 2:358.

[3] —— 2:357-58.

Effect on the bones. We know of no evidence to show that the use of alcohol directly affects the bones.

Effect on muscular action. Since alcohol is almost entirely oxidized in the body, it is probable, but not absolutely proven, that some of the liberated energy becomes available for muscular work.[1] The recent experiments of Lee and Salant[2] may not, as the authors expressly state, be wholly applicable to the human body, but their suggestiveness is so great as to warrant the reproduction of the " Summary " here.

1 In small quantity (2.37 parts pure alcohol to 1000 parts of body weight) ethyl alcohol does not appear to exert any action on frog's muscle.

2 In medium quantity (40 parts pure alcohol to 1000 parts of body weight) it exerts a favorable action, which is characterized by a quickening of the contraction; a quickening of the relaxation; the power of making a larger number of contractions and of performing a larger amount of work in a given time; an increase in the working time, or, in other words, a delay of fatigue; and the power of making a larger number of contractions and of doing a larger amount of work before exhaustion sets in. This action is exerted directly on the muscle protoplasm itself, not on the intramuscular nerve tissue.

3 In large quantity ethyl alcohol exerts on frog's muscle an unfavorable action, which is, in general, the reverse of that caused by medium quantities of the drug, and is characterized by a decrease in the extent of the contractions; a decrease in the working time, or in other words, a hastening of fatigue; and the power of making a smaller number of contractions, and of doing a smaller amount of work before exhaustion sets in.

Atwater states[3] that "the diet provided for English students in training for boat races commonly includes small quantities of beer or wine," and that Sandow, the "strong man" took beer daily. On the other hand, alcohol affects the central nervous system, weakening the power of control of the muscles and so counteracting, wholly or partly, any advantage which might come from the energy of oxidation. In moderate quantities it may render possible a brief spurt of work which is soon followed by a depression of energy below the normal. Atwater concludes that "the use of any considerable quantity of alcoholic beverages as part of the diet for muscular labor is generally of doubtful value and often positively injurious."[1] Abel declares[2] that "both science and the experience of life have exploded the pernicious theory that alcohol gives any persistent increase of muscular power."

---

[1] Physiological Aspects of the Liquor Problem, 2:269.

[2] American Journal of Physiology, Oct. 1, 1902. 8:61-74.

[3] Physiological Aspects of the Liquor Problem, 2:301.

The above expressions are in harmony with the experience of athletes who commonly abstain from alcoholic beverages when training for, or competing in, athletic contests. If used at all, it is to be recommended as an agent to lessen the sense of fatigue at the close of the day's work.

Production of heat. Atwater,[3] in his calorimeter experiments with men, found that only a small part of the heat produced by the oxidation of alcohol was lost by radiation from the surface of the body. With intoxicating doses the loss may be considerable and the temperature of the body may fall several degrees; but with small doses the reduction of body temperature is slight—often too small to be measured by the ordinary clinic thermometer. In Atwater's experiments where 2½ ounces of alcohol were used daily in six doses, the extra heat radiation was only about one tenth of 1% of the whole. He concludes that the alcohol certainly does not waste more heat than it furnishes.

Nervous system and mental functions. In regard to the effect of alcohol on the nervous system there are two theories held today by physiologists and pharmacologists. The first, that of Binz and his followers, is that alcohol, when incorporated in the blood, first stimulates, then depresses the nerve centers. According to Schmiedeberg and Bunge, and this is the view most generally held among pharmacologists today, it depresses the centers from the start. According to this latter school the apparent excitation which occurs as a preliminary stage in the action of the drug is in reality an increased action of certain subordinate centers resulting from removal of control of the higher centers. This loss of control comes from the depressing or paralyzing influence of the alcohol on these higher centers which normally exert a certain inhibitory control over the lower.[1] In either case the final effect of alcohol is that of a sedative or a depressant. The experiments of Kraepelin[2] and others, while not absolutely conclusive, indicate that moderate quantities of alcohol (15 to 40 grams) shorten the time of simple processes like moving the finger or adding columns of simple figures. Larger quantities than 30 to 40 grams lengthen the time of all types of mental processes. In general the use of alcohol does not enable the individual to perform a greater amount of mental work. Perhaps its most marked effect on the individual is the weakening of his judgment, particularly in regard to subjective conditions. He is unable to judge correctly regarding his own thoughts or his own words. He imagines himself wise or witty when he is the reverse.

---

[1] Physiological Aspects of the Liquor Problem, 2:279.
[2] —— 2:165.
[3] —— 2:294-97.

Abel, after an elaborate investigation, also decides[3] that, "alcohol is not found by psychologists to increase the quantity or vigor of mental operations; in fact, it clearly tends to lessen the power of clear and consecutive reasoning." He concludes[4] "We have seen that alcohol, from the very first, has a depressant action for the higher mental functions. Hence it is, that in all those vocations of life where keen senses, sharp attention, the ready and immediate action of a clear judgment, or great concentration of the mind are called for, alcohol in any form or amount is injurious when taken *during the performance of the*

---

[1] Hewes, H. F. Value of Alcohol as a Therapeutic Agent in Medicine. Bost. 1902. Damrell & Upham. p.10-11.

[2] Physiological Aspects of the Liquor Problem. 2:122-25.

[3] —— 2:141.

[4] —— 2:165.

duty in hand. He who has mental labor of an exacting kind to perform, and he upon whom great responsibilities devolve, is forced, if he would be at his best, to use alcohol as a restorative agent only at the proper season; he must behave to it as he does to many other pleasures and luxuries in his environment." Abel thinks, however, that there is a permissible quantity of alcohol which may be taken as a restorative agent. This he represents by a quantity not to exceed the equivalent of half a pint of table wine in 24 hours.[1]

He says further, "It is universally admitted by medical men that alcohol in any form is deleterious to the growing organism."[2]

Stages of intoxication. The effect of alcohol appears to be, as it were, to shave off the nervous system, layer by layer, attacking first the highest developed faculties and leaving the lowest to the last, so that we find that a man's judgment may be lessened, though at the same time some lower faculties, such as the imagination and emotions, may appear to be more active than before, just as I told you that in the case of other parts of the nervous system when you remove inhibition you apparently increase the activity of a center, and that the highest centers have an inhibitory action upon the lower ones.

Thus you find that after a man has taken alcohol his judgment may be diminished, but he may become more loquacious and more jolly than before. Then after a while his faculties become dull; he gets stupid and drowsy. This is the narcotic and anodyne action of alcohol. As a hypnotic it causes sleep; as an anodyne it removes pain; as a narcotic it also disturbs the balance of the faculties, so that the man is no longer able to judge things as he did before, but at the same time the man may still be able to walk.

Later on it affects the motor centers, probably the cerebellum, so that the man is no longer able to walk, and reels whenever he makes the attempt. At this time, however, he may still be able to ride (on horseback), and a man who is so drunk that he can not walk and can not speak may ride perfectly well. The reason of this is that at the time his cerebellum and cerebrum have lost their functional activity his spinal cord is still active, so that the mere reflex stimulus from the pressure of the saddle on the inside of his thighs causes contraction of the adductor muscles, and holds the man in his place on the horse.

---

[1] Physiological Aspects of the Liquor Problem, 2:166.

[2] —— 2:129.

> Later on the further anesthetic action of the alcohol abolishes sensation, and its paralyzing action destroys the power of the spinal cord, so that the man is no longer able even to ride; but still the respiratory center in the medulla will go on acting, and it is not until enormous doses of alcohol have been given that respiration becomes paralyzed.
>
> Alcohol . . . makes all the nervous processes slower, but at the same time it has the curious effect of producing a kind of mental anesthesia . . . so that these processes seem to the person himself to be all quicker than usual, instead of being, as they really are, much slower. Thus a man, while doing things much more slowly than before, is under the impression that he is doing things very much more quickly. What applies to these very simple processes applies also to the higher processes of the mind; and a celebrated author once told me that if he wrote under the influence of a small quantity of alcohol, he seemed to himself to write very fluently and to write very well, but when he came to examine what he had written next day, after the effect of the alcohol had passed off, he found that it would not stand criticism.[1]

Insanity. The sources of information regarding alcohol and its relation to insanity are taken from the records of hospitals and insane asylums. The data given at the time of commitment of a patient are usually furnished by his friends, and it is quite possible that other causes than alcoholism may be often overlooked. Hence, we are not quite sure that statistical information of this kind is reliable. For some reason the proportion of insanity due to alcoholism seems to vary more widely than the conditions warrant. Of the 1329 cases from insane hospitals reported by the Committee of Fifty,[2] 24.08% were considered due to the influence of liquor. The corresponding figure in statistics collected from Massachusetts is 20.86%. Dr Clouston[3] of the Royal Asylum, Morningside, Edinburgh, places intemperance as the cause of insanity in about 25% of admissions there. Dr William C. Krauss of Buffalo N. Y. has made a careful study of the reports of the New York Lunacy Commission and finds that from 1888 to 1902 the proportion of cases of insanity recorded as due to alcohol in all the New York State hospitals was a trifle less than 9%. From 10 years' experience (from 1891 to 1901) in the insane asylum of Castel d'Audorte in one of the wine-producing districts of France, G. La Laune[1] reports that 5.03% of patients admitted for treatment of various mental affections owe their malady to acute, subacute or chronic alcoholism. This was also practically the proportion for the preceding 20 years.

---

[1] Brunton, T. Lauder. Lectures on the Action of Medicine. Lond. 1897. p.190, 191, 194.

[2] Physiological Aspects of the Liquor Problem, 1:341.

[3] Letter from Dr James M. Rutherford, Royal Asylum, to Mr Lawrence Irwell, Buffalo, Ap. 30, 1903.

While, for unexplained reasons the proportion of cases thought to be due to intemperance is variously estimated, the conclusion is irresistible that the use of alcohol is a prolific cause of insanity. And in this fact is to be found a strong argument for abstinence from intoxicating drinks.

Longevity. Regarding the influence of alcoholic beverages on the duration of life the most trustworthy evidence is derived from the records of life insurance companies, benevolent societies, and similar organizations which either have a temperance section or insist on total abstinence as a condition of membership. The evidence is vitiated somewhat by the fact that total abstinence is taken for granted on the statement of the person insured, and there is no way of knowing whether he actually uses intoxicants or not. Brunton[2] gives the following figures selected from the reports of two organizations whose location and other conditions appear to be comparable. The period includes the years 1870-77.

	Average sickness	Death rate
Bradford District Rechabites (Abstainers)	4 days 2 hrs	1 in 141
Bradford District Odd Fellows (Nonabstainers)	13 " 10 "	1 in 44

The Sceptre Association of London has separate sections for moderate drinkers and abstainers. The circular of the company gives the ratio between expected and actual deaths for the 18 years 1884-1901 as follows:

Death rate of moderate drinkers	79.38
Death rate of abstainers	55.12

---

[1] Medical News, June 20, 1903, p.1173.

[2] Book of Health, 1883.

The United Kingdom Temperance and General Provident Institution, London, has both a "general" section and a "temperance" section. The mortality experience under ordinary whole life policies from 1866 to 1902, 37 years, shows that the ratio of actual to expected claims in the general section was, in round numbers 91%, and in the temperance section 72%, an apparent advantage of about 19% in favor of the abstainers.

The comparative longevity of abstainers and moderate drinkers has been investigated by the Mutual Life Insurance Co. of New York, the investigation being based on its own mortality experience from 1875 to 1889.[1] As the intention was to test the company's own methods regarding a certain group of policies, and for business purposes only, the results may be safely regarded as free from sentimental bias. For the whole period the abstainers had a death rate of 78% while the nonabstainers reached 96% of the maximum expected loss. It was found, however, that the death loss among the nonabstainers was greatest in the earlier years following the issuance of the policy. After the fourth year, the actual loss among the abstainers was 80%, and among the nonabstainers 90% of the maximum expected loss. Taking persons born in the United States by themselves, the percentage was 84% for abstainers and 92% for nonabstainers, a difference of 8% in favor of the former. In conclusion the author says [p.10]:

> There is no reason to distrust the general result of this investigation. It coincides with all previous reasonable belief and expectation. It does not show that those who drink only occasionally and not to intoxication, or those who drink habitually but lightly, are in any way injured. It does not show that all of those who drink heavily must therefore necessarily die prematurely. It does show, however, that there is enough injury done to a sufficient number of individuals to make the death loss distinctly higher on the average. Again, it is admitted that death losses in excess among drinkers are not necessarily always due to drink. The coincidence between excessive drinking and lowered vitality may be partly due to bad risks taking to drink, as well as to good risks becoming bad because of drink. On the

---

[1] McClintock, Emory. On the Rate of Death Loss among Abstainers and Others. Actuarial Society of America. Transactions. Ap. 1895.

whole, however, the teetotal habit, not only before but also after middle age, must be counted as a favorable indication in judging of proposals for insurance from persons not known to be careful and moderate in the use of beverages.

Conclusions

It is plain, therefore, that on many points there is still much difference of opinion among those best qualified to know. Whether alcohol may be a food or is always a poison; whether it lengthens or shortens the time of digestion; how it affects certain organs of the body; whether its use in any quantity is ever permissible—these are some of the questions still open for discussion. The human organism is exceedingly complex and variable, and no one can predict from his own experience what that of another individual may be. For this reason such questions must remain long unsettled. Your committee wishes to say here most emphatically that till they are settled, they should not be made prominent parts of common school education. It is unreasonable to expect a child or youth to decide a question on which the most eminent physiologists differ. It is also unscientific and untruthful to teach either view exclusively as the true one so long as it is a matter of controversy. On certain practical points of supreme importance the committee has seen no reason for modifying materially the views set forth in its report of 2 years ago,[1] and they are here reproduced.

1 All writers agree that an excess of alcohol impairs certain functions of the cerebrum, for example, attention, memory and self control, and that many cases of insanity are due to such excess.

2 What constitutes excess will differ with individuals, with occupations and with other conditions. On the present occasion your committe does not undertake to prescribe the limit of safety for the average adult.

3 The committee does not consider that the stimulative action of alcohol on the system as a whole has been demonstrated, nor is it aware that any authority claims that in health or under

---

[1] University of the State of New York, High School Dep't Bul. 17. Oct. 1902. p.750–51.

ordinary circumstances, alcohol is an *economical* food, whether for the production of heat or for the protection of fat or proteid.

4 As a matter of fact, the average man in health and under ordinary circumstances disregards these possible rôles of alcohol and takes it because of its flavor or because he finds it conducive to his personal comfort or to good fellowship.

5 Your committee believes that *spirits* should never be used as beverages unless largely diluted, and that alcohol in any form should be taken only at meals and after the work of the day is done.

6 Youths, say under 21, should abstain altogether from alcohol, excepting under specific medical advice.[1]

---

[1] The importance of this matter and the natural indisposition of youths to refrain from what is permitted their elders lead the committee to state the grounds of their recommendation categorically as follows:

1 Most parents prefer that their sons should abstain till of age.

2 Several college presidents have advised their students to abstain.

3 Among those who hold very liberal views as to the use of wine by adults, an experienced physician and an expert investigator of the whole subject wrote, respectively, as follows: "I exhort all young people in health not to adopt the practice of drinking wine." *Dr James Jackson* "For youths, say under 25, the proper rule is either no alcohol or very little indeed." *F. E. Antsie*

4 Analogous restrictions based on age are commonly recognized. The infant takes no solid food; the child retires early; the boy is spared severe labor: the responsibilities of marriage, of society and of political life are postponed till a certain development of body and mind has been attained. Is it not then prudent for the youth to defer the use of so potent an agent as alcohol at least till his majority is reached?

5 Seldom, if ever, is there at the outset a real liking for the taste of alcoholic beverages; on the contrary, their use is commonly begun in thoughtless imitation of older persons or of foreigners; an unworthy motive for doing anything of doubtful utility.

6 Comparatively few students live at home or take their meals at private clubs. At school and college boarding tables alcoholic beverages are seldom served; consequently they are likely to be used, if at all, at saloons, where the other conditions are more or less undesirable, and with little or no accompanying food. It is universally admitted that both the local and the general effects of alcohol are most pronounced when taken on an empty stomach.

7 To gain or hold places on athletic teams abstinence is generally required. Even German corps students are beginning to recognize the incompatibility of excessive beer drinking with proficiency in fencing.

8 The foundations of inebriety are commonly laid early. C. L. Dana found that of 210 inebriates nearly all began to drink before 30, and about

Even if we admit, as we should, everything favorable that can be truthfully said about alcohol, that in many cases it adds to the pleasure of life; that it may aid the sick; and that millions of adults use it in some quantity for many years without demonstrable harm; we still have ample reasons why the young should abstain from it. We say the young, because it is the young with whom as teachers we have to deal. It is agreed that alcohol in any form or quantity is not necessary or useful to the growing boy or girl; that with many, though not all, persons the use even of small quantities develops an appetite for liquor which leads to excessive drinking, physical and moral degradation, crime and untold misery. Till he has tried it no one can be sure whether he can control his appetite or not. When he has ascertained the fact it is often too late. The child should be taught to avoid alcohol because it is dangerous to him. The only certain safety for the young lies in total abstinence.

D PHYSIOLOGIC EFFECTS OF TOBACCO

While the literature of tobacco is voluminous, it contains very little of scientific value. Experimental research on tobacco, comparable to that of Abel and Atwater on alcohol, has not been carried on, to our knowledge, either in America or Europe. The facts which we have thought worthy of consideration have been derived principally from (1) standard works on pharmacology; (2) experience of physicians and users of tobacco; (3) results of research, as given in a limited number of papers.

Tobacco contains an alkaloid, nicotin, on which its physiologic effects mainly depend. When smoked, other products more or less poisonous are formed, among which are carbon monoxid, carbon dioxid and pyridin. It has been claimed that the characteristic

---

two thirds before 20. *Medical Record*, July 27, 1901; *Quarterly Journal of Inebriety*, Oct. 1901

9 Youth is the age of peril; temptations abound without; appetites and passions are foes within; of all periods of life, in this should a man be ever "on guard," and protected by the community.

10 Habits are most readily and firmly established in youth. Of all the most valuable is the habit of self-control. "The world belongs to those who can control themselves"; but the man who uses alcohol in excess never can do that.

effects of tobacco smoking are due to these by-products and not to the nicotin itself; but this view does not receive the sanction of some of the best authorities.[1] When absorbed into the body nicotin acts, at first, as a brief stimulant of the nervous, circulatory and respiratory systems. This stimulation is followed by a marked depressant action. In concentrated form it is a powerful poison, 60 mg. (.924 grain) being a fatal dose for a man. If inhaled as smoke, not more than 1% of the nicotin in the tobacco is utilized.

At first the use of tobacco generally induces dizziness, nausea, vomiting and more or less prostration. After a few trials, however, the body becomes accustomed to its use, and tolerates it or even demands it. In fact, with many persons, the habitual use of tobacco creates a craving for it which the user finds very difficult to resist. Toleration once established, smoking in moderation produces no unfavorable symptoms on adults, but on the contrary agreeable sensations. "There appears to be a certain repose, which, whilst it neither directly aids nor hinders the psychic processes, leaves the mind free, and in general raises the user's enjoyment of other pleasures. The experience of recent campaigns appears to show that the use of tobacco enables soldiers already accustomed to it to endure greater hardships."[2] On the alimentary tract moderate smoking is thought by many to be beneficial. It produces an increased flow of peptic fluids and increases the powers of digestion.[3] In many cases also it seems to have the effect of keeping the bowels regular.[4]

The study of the action of nicotin on the circulation is not as easy as the study of its action on other portions of the organism. This is because the drug has totally opposite effects if given in large or small doses. Thus, large doses of nicotin paralyze the vagus nerve, smaller doses stimulate it, and still smaller doses seems to have but little, if any, effect on it.[5]

---

[1] Sollman, T. Text-book of Pharmacology. Phila. 1901. p.285.

[2] (—— Phila. 1901. W. P. Saunders. p.287.

[3] Seaver, Jay W. Arena. Feb. 1897.

[4] Sollman, T. Text-book of Pharmacology. Phila. 1901. p.288.

[5] Hare, H. A. Use of Tobacco. Phila. 1885. p.31. (Prize essay of Rhode Island Medical Society)

Smoking when carried to excess may produce the "tobacco heart," characterized by irregularity of action with occasional intermission of beats. This condition usually ceases when smoking is discontinued. It is also probable that defective vision may arise from the same cause.[1] Insomnia, general feebleness and lack of coordination of muscles are also attributed to inordinate use of tobacco.

The possible beneficial results that follow the use of tobacco are summed up by Dr Norman Kerr[2] as follows:

> Concentration of thought, mental satisfaction, protection against infection, and domestic happiness. There are persons so constituted that the intellectual powers require to be arrested and concentrated before any definite intellectual effort can be entered on. To such persons tobacco smoking has proved invaluable, the advantages far outweighing the disadvantages. No other substance, narcotic or anesthetic, is yet known which would serve the purpose and do so little damage. Were tobacco not known the idiosyncrasies of such individuals would interfere with the achievement and excellence of their work. All with whom tobacco does not disagree realize fully the pleasure and mental satisfaction afforded by smoking. No language can accurately describe the comfort enjoyed from a pipe when one is exposed to severe weather in the trenches or the power it has to stay the stomach-crave for food when no food is to be had; and the action of tobacco under such circumstances can not be considered harmful.
>
> Though the writer (Norman Kerr, London) has not used tobacco in any form for many years and though he is strenuously opposed to its ordinary use, he would not think of going through a yellow fever ward, unless after a full meal, without a lighted pipe or cigar, or cigarette in his mouth.
>
> Then there are many persons, cultured and uncultured, but especially the former, who after an exhausting day's work with head or hands are so worn out and irritable that everything appears wrong from the cooking of food to the playfulness of

---

[1] A chronic retrobulbar neuritis may arise from a variety of causes, chief of which is the abuse of tobacco. The victim usually comes early to the physician complaining of some loss of sight with possibly a slight cloudiness obscuring vision. In such cases the ophthalmoscope reveals no signs of a special pathological state, and normal vision soon returns on the discontinuance of the use of tobacco. *Richard Ellis M.D.*, Med. Record, Sep. 25, 1897

[2] Twentieth Century Practice. N. Y. 1895. p.110–11.

children, but who when they have had a smoke are pleased with themselves and all the world beside.

Notwithstanding all that has just been urged in exculpation of tobacco as an inebriating factor, the broad fact remains that it is a potent poison, the general tendency of which is to debilitate the system, stunt growth, and deprave function, that it can not be indulged in except at a certain risk, especially by the young, and that general abstinence from it would greatly promote the health and vigor of the population at large.

Data based on experiments either on man or the lower animals are almost entirely wanting and such as are available are of little scientific importance. The few investigations of which your committee has record have been along the line of growth and development. Jay W. Seaver M.D., physical director at Yale University, has published[1] the results of measurements of students in the Yale gymnasium for 9 years. He finds that smokers are inferior to nonsmokers in size and in every other respect physically except weight. In hight the nonsmokers averaged 7 millimeters greater, and in lung capacity 80 cubic centimeters more than the smokers. The latter, however, exceeded the former in weight by 1.4 kilos. Dr Seaver says:

> For purposes of comparison the men comprising a class in Yale have been divided into three groups. The first is made up of those who do not use tobacco in any form; the second consists of those who have used it regularly for at least a year of the college course; the third group includes the irregular users. A compilation of the anthropometric data on this basis shows that during the period of undergraduate life, which is essentially 3½ years, the first group grows in weight 10.4% more than the second, and 6.6% more than the third. In hight the first group grows 24% more than the second and 11% more than the third; in girth of chest the first group grows 26.7% more than the second, and 22% more than the third; in capacity of lungs the first group gains 77% more than the second, and 49.5% more than the third.
>
> These results are essentially the same as those obtained by Dr E. Hitchcock of Amherst College, who observed a similar group of young men in a manner entirely independent. He says: "In separating the smokers from the nonsmokers, it appears that

---

[1] Medical Examiner and Practitioner, June 1902, p.375–77; *and also* Arena, Feb. 1897.

in the item of weight, the nonsmokers have increased 24% more than the smokers; in growth in hight they have surpassed them 37%, and in chest girth 42%. And in lung capacity there is a difference of 8.36 cubic inches (this is about 75%) in favor of the nonsmokers, which is 3% of the total average lung capacity of the class."

I do not know how we can compare the work of the users of tobacco with that of the nonusers in mental lines as we can in physical lines. I can tell you absolutely whether a man has gained a pound in weight during the year, but I can not tell you by any such definite means the mental progress that has gone on in that time. We must always be exceedingly careful in handling statistics of the mental process. Out of our highest scholarship men only a very small percentage (about 5) use tobacco, while of the men who do not get appointments over 60% are tobacco users. But this does not mean that mental decrepitude follows the use of tobacco, for we may read the results in another way, viz. the kind of mind that permits its possessor to become addicted to a habit that is primarily offensive and deteriorating is the kind of mind that will be graded low on general intellectual tests.

Dr W. P. Lombard of the University of Michigan conducted a series of experiments which seem to prove that tobacco smoking lowers the voluntary working power of the human muscle.[1] His work was done with the ergograph. The result of 33 voluntary muscle contractions gave before smoking 44.8 kgm, after smoking 24.2 kgm. This decrease in muscular power was not accompanied by any compensating duration of working ability.

Whatever difference of opinion there may be regarding the effect of tobacco on adults—and much difference of opinion exists—there is almost complete agreement among those best qualified to know that the use of tobacco is in a high degree harmful to children and youths. Physicians, teachers and others who have much to do with boys very generally remark that those who begin to smoke at an early age very seldom amount to much. Andrew D. White, former president of Cornell University, happily sums up the matter as follows:

I never knew a student to smoke cigarettes who did not disappoint expectations, or to use our expressive vernacular, "kinder peter out." I have watched this class of men for 30 years, and

---

[1] Journal of Physiology. 1892. 13:1-58.

can not recall an exception to this rule. Cigarette smoking serves not only to weaken a young man's body, but to undermine his will and to weaken his ambition. In colleges having a large percentage of these futile personages they too often give the student tone; they set the fashion; the fashion of overexpenditure, of carelessness as to the real aim and glory of college life. *Cornell Sun*, Nov. 11, 1891

We believe, therefore, that the probable effects of tobacco on growth, physical development and character as indicated above may profitably form a part of school instruction in hygiene, and that the influence of both teachers and parents should be exerted in every practicable way to prevent the use of tobacco by the young. The laws against selling tobacco to boys should be heartily supported and the formation of anticigarette leagues encouraged. The known facts regarding the effects of tobacco on adults, except when it is used to excess, are in our opinion insufficient at present to form a basis for any scientific dictum.[1]

E TEACHERS AND THE NEW YORK STATE LAW

In the public schools of the State of New York there are more than 33,000 teachers. For its size there probably exists no more intelligent, moral, or temperate body. Many of these teachers are active members of temperance organizations. They sustain a closer relation to the child than any one excepting its parents. Too often, indeed, the teacher's is the only good influence under which the child is ever brought. The teacher has the pupil in hand when the foundations of character are being laid, and is keenly alive to his responsibilities. He is predisposed to favor anything tending to the better physical, mental or moral welfare of his charge.

Yet we have reason to believe that of this large body of earnest, intelligent and temperate educators, the majority are not in sympathy with the present scheme of "temperance instruction" or with the state law controlling it. Furthermore, we believe the fault is not with the teachers.

---

[1] The ethical aspect of smoking is important but the committee determined not to include it in the present report.

Briefly stated, the teachers' side of the case is this: the textbook in the child's hands contains matter which the teacher regards as ill-arranged, partizan, exaggerated, or inaccurate. He must therefore either do violence to his own convictions by teaching what he does not believe, or impair the pupil's confidence by showing that the book contains unwarranted statements and views. It is as if the law enjoined the use of a catholic textbook in a protestant school, or a protestant textbook in a catholic school.

Again, it is the teacher's business to understand the mind of the child and to adapt his instruction to it in such a way that knowledge may be assimilated. To thus adapt it he must have freedom of action. This the law prevents by prescribing not only the amount of instruction but the connection and manner in which it shall be imparted. No such restriction is placed on any other professional man; no other professional man would submit to it. A law which should specify for the physician the kind of medicine and the number of doses he should give, or the number of professional visits he should make, would encounter prompt and merited opposition. What we actually do is to put the case in his hands and trust him to produce the best results of which his knowledge and skill are capable. So, also, when we employ a lawyer we state the conditions and leave the management of the case to his superior judgment. The teachers of this State properly ask that to them be accorded the courtesy and consideration shown the members of other professions.

So far from this being the case, the teachers at large have been ignored or overruled in the framing of temperance legislation. Science and education have been subordinated to a propaganda, and the naturally interesting study of human physiology in the public schools has been converted into the disproportioned and unattractive vehicle of a special reform.

As the result of the antagonism thus aroused there exists the curious and regrettable anomaly of two bodies of earnest people, each desirous of guarding the young against intemperance, at variance with each other and thus delaying the object for which both are striving. This condition of things should not be allowed to continue. The organizations specially interested in temperance education, and the teachers without whose aid nothing can be satisfactorily accomplished, should get together, ascertain what ground of belief they have in common, and work together on that ground in the public schools, leaving disputed questions to be settled elsewhere. In the public schools should be taught only those facts and opinions which can not be controverted.

With the nonessentials omitted much more work can be done, and done better. The matter relating to alcohol and narcotics which is now taught throughout the entire course can be taught just as thoroughly and with added interest in half the time now consumed. The teacher should have perfect freedom as to method. He should not be required to discuss the effects of alcohol or other substances in connection with each function or system of organs. If he can teach better with the text, let him teach that way. If he can teach better without it he should be free to do so. He should be allowed to exercise his judgment in this as in other studies, as to whether the pupil understands it and may safely discontinue it. Comprehension of the subject and not number of lessons should be the standard of graduation from it. Thus the pupil will be freed from the senseless repetition that makes an otherwise pleasant study hateful. To render these changes possible our state law should be amended, and all interested in true temperance should lend their influence to that end.

F THE CONNECTICUT LAW

In its preliminary report your committee said:[1] "We are interested in the recent changes effected in the law in the state of Connecticut, and look with favor on its present provisions, but, before recommending similar specific changes in our law, we deem it wise to allow a reasonable time to elapse for observation of the working and results of that law."

---

[1] *See* University of the State of New York. High School Bul. 17, p.761.

The Connecticut law reads as follows:

Act approved May 29, 1901. Public Acts, 1901, ch. 81

§ 1 The effects of alcohol and narcotics on health, and especially on character, shall be taught in connection with hygiene, as a regular branch of study, to all pupils above the third grade in all graded public schools, except public high schools.

§ 2 Suitable textbooks of physiology and hygiene, which explain the effects of alcohol and narcotics on the human system, shall be used in grades above the fifth in all graded public schools, except public high schools.

§ 3 The provisions of sections 1 and 2 of this act shall apply, in ungraded public schools, to classes corresponding to the grades designated in said sections.

§ 4 All normal schools and teachers training schools shall give instruction in the subjects prescribed in section 1 of this act, and in the best methods of teaching such subjects.

§ 5 No certificate to teach in grades above the third shall be granted to any person who has not passed a satisfactory examination in the subjects prescribed in section 1 of this act.

§ 6 If it shall be satisfactorily proven to the comptroller that any town or district, having pupils above the third grade, has failed to meet the requirements of this act, such failure shall be deemed sufficient cause for withholding, in whole or part, school dividends which such town or district would be entitled to receive.

§ 7 Chapter clvii of the Public Acts of 1893, and sections 2100 and 2141 of the General Statutes, are hereby repealed.

To ascertain the practical working of this law which became operative Sep. 1, 1902, the following circular letter was sent to the superintendents of schools in nine of the larger cities of Connecticut. That part of their answers bearing on the questions is given below:

Buffalo N. Y., Sep. 29, 1903

Dear sir: The New York State Science Teachers Association is now endeavoring to secure a more rational law regarding the teaching of stimulants and narcotics in our common schools. Knowing that you are working under the action of a new and less strenuous act, I take the liberty of inquiring whether the new law is more, or less, satisfactory than the old and in what respects. How does it affect results? Do you see any change in the attitude of teachers or pupils toward the subject? Does your experience suggest any further modification by which the present Connecticut law could be improved?

Very truly yours
[*Signed*] I. P. Bishop
President State Science Teachers Association

1 The Connecticut law to which you refer has greatly modified the attitude of superintendents, principals and teachers toward the teaching of socalled temperance physiology . . . As evidence of the improved attitude of school people toward the subject I will state that there have been frequent calls throughout the state for lectures and illustrative lessons on subject-matter and methods of physiological instruction. Our state normal schools, more especially those at New Britain and Willimantic, both of which had before 1900 ignored the subject and the law, are now giving the subject serious attention. The temperance people count this a great gain.

I know of no respect in which the Connecticut Law should be changed nor have I heard any suggestion on that point. As far as I am aware, the school people and the temperance people are satisfied to let the present law stand.

2 I think that the new law regarding the teaching of temperance physiology is working as well, certainly, as the old one.

3 It is a great improvement over the old one. It does not demand the impossible as the old law did in requiring reading book instruction on the subject in the kindergarten and primary grades. It gives a more rational apportionment of the time to be given to the oral and textbook instruction. It commands the respect of the teacher in a much greater degree than the old law did as it makes the study of hygiene the basis for temperance instruction. It has driven the untruthful and unscientific textbook from the Connecticut market. It has stimulated the making of better textbooks on the subject.

I have no modifications to suggest to the present law. If we must have one, the present Connecticut Law is all right as far as I know. Our teachers are interested in the subject and would teach it to the best of their ability without law. Drawing, history, literature, and manual training have never been legislated into our curriculum.

4 The law is the best that I know of and there is no reason why it should not be a success if the teachers will do their part. As yet I have not seen any change in the attitude of teachers or pupils toward the subject, but in time there must be. The law is such an advance over the old one that I expect to see an entire change in the attitude of teachers and pupils toward this important subject. I expect also to see a much better series of textbooks published than we have had during the past.

5 I believe that the present law is better than the old law. I believe that it would be still better if teachers could be left to themselves in regard to when and how much of the temperance idea should be introduced into school work. A law requiring

formal instructions in temperance and morals is of doubtful utility.

6 Our law was prepared with much care and after thorough discussion and works to our satisfaction so far. We consider the change a decided benefit so far as the impressions on the child's mind are concerned. My worst trouble has been to get hold of the right textbook on the subject.

7 The present Connecticut law is very satisfactory. I am unable to make comparison since the only effect it has had on our work is to remove compulsory instruction from the first three grades.

8 We find conditions in respect to the teaching of physiology, and especially the effects of stimulants and narcotics, changed for the better under the new law. This change for the better is brought about partly through the fact that we no longer have to begin to teach with a textbook in the hands of children in so low a grade as formerly. The original law was, in my judgment, absurd in that it required the placing of a textbook in physiology—with the due amount of space given to the treatment of stimulants and narcotics—in the hands of children having no textbooks in any other subjects. We now place books in this subject in the hands of the children in the fifth grade, that is, the fifth year in school. The teachers, and so far as I know, the pupils, are much pleased at the change and I am confident that the merit and efficiency of the work have been improved.

9 Replying to your letter of recent date will say that we have been working under the new law concerning stimulants and narcotics for one year. In my judgment the law is very much more satisfactory than the preceding one, for the following reasons. More liberty is allowed in the use of textbooks. We shall be able to supply ourselves with textbooks that do not make overstatements and leave wrong impressions upon the mind. There is larger latitude given the teachers in their work.

I believe that teachers are better pleased with the present law than with the old one, for the reason that, in the lower grades, not nearly as much is required of them. I do not think any further modification of the present law is needed although we shall have to summer and winter with it two or three years to determine that positively. So far as results gained are concerned it is very much too early to decide.

I question very much whether our temperance friends will fully realize the results that they have anticipated from any law; still we can but hope that impressions will be made that will influence for good all future life.

I am perfectly satisfied with the present law so far as I have observed it.

The extracts quoted above confirm your committee in the favorable opinion of the Connecticut law expressed in our preliminary report.

This law was passed after meeting the approval of the Connecticut temperance organizations and educational authorities. Why should not similar cooperation be practicable in the State of New York?

G APPENDIX

Modifications of the preliminary report of 1901

1 Fothergill's *Practitioner's Handbook of Treatment* was quoted on p. 746 and 747. The quotation is correct; likewise the year of publication. But, through inadvertence in writing and proof reading, the edition is said to be the 11th instead of the 4th; the number 688 designates the number of pages in the volume; the passage quoted on p. 746 is from p. 34; and the title should have included the information that this edition has been "edited and in great part rewritten by Murrell."

2 On p. 747 respecting the textbook of Steele it was shown experimentally as early as 1870 that alcohol is largely oxidized in the body. Subsequent experiments in 1875 and 1883 confirmed this fact beyond reasonable doubt. Steele's *Hygienic Physiology* written in 1884 teaches that alcohol is eliminated unchanged from the body without oxidation. In 1889, 14 years after the nearly complete oxidation of alcohol in the body had been conclusively proved (1875), the book received the indorsement of the Woman's Christian Temperance Union and bore this indorsement without alteration of the objectionable statement till 1900. We are credibly informed that the change, conceding the partial oxidation of alcohol in the body was made in 1900, but have not found it in any edition earlier than the one having date of 1901. The edition of that year concedes the partial oxidation of alcohol in the body. When our preliminary report was issued, Dec. 28, 1901, the change had not been brought to our attention.

At the time of its indorsement by the Woman's Christian Temperance Union and for several years after, Steele's textbook was probably more widely used in New York State than any other school physiology. The erroneous statement, therefore, through its indorsement, secured extensive dissemination and credence.

3 On p. 758, in the prelude to one of the queries sent to teachers by a member of the committee, occurs the following: "Prof. Atwater's experiments seem to prove conclusively that alcohol in small quantity can be used like sugar, starch and fat for generating heat and muscular energy." In so far as the committee as a whole may be held responsible for the above it is proper to say that the words "seem to prove conclusively" should have been "render it probable." See Atwater's guarded declarations on the subject in *Physiological Aspects of the Liquor Problem,* volume 2, pages 269, 278, 279. On 279 he states explicitly that proof of the conversion of alcohol into muscular energy in no way proves the desirability of alcohol for such a purpose.

4 On p. 750, the phrase, "Youths, say under 21, should abstain altogether from alcohol," has been objected to as a "specious plea for moderate drinking" after the age named. We wish to say, emphatically, that nothing in that report, or in the present, is intended as a general recommendation that alcoholic beverages be used even by adults. Nor, particularly, is the reprobation of their use by youths, say under 21, to be construed as advising or even condoning their use on attaining that age. That age is specified because it seems best to discriminate between the boy who should not drink at all and the man who in our opinion, may drink under certain conditions. At 21 the individual ceases to be an infant or minor in the eyes of the law; he attains his majority. With respect to alcoholic beverages we believe he may wisely and prudently continue to abstain at least till of middle age.

Mrs Cora Dodson Graham—In the latter part of October (27) the chairman of your committee on stimulants and narcotics, invited me to take part in the discussion of the report which his committee would make at this time. In my reply, after stating that my official, social and home duties naturally demanded much time, I accepted the invitation on condition that I had the report at least two weeks in advance of the discussion so that I might work on it as time permitted. You have heard of the disadvantages under which his committee has labored, and I think it but just to me and the views I present, to say that not one page of the report had been received by me till Wednesday afternoon of last week, and then but three pages, and that not till yesterday afternoon at four o'clock five pages more of the report. Since the receipt of yesterday's portion of your committee's report, many unavoidable interruptions have occurred, and as you should be generous with them, I ask only the same courtesy for myself, one of your guests of the hour, in case I should occupy a little more than my allotted time, as I have not been able to rewrite my paper and bring it thus into exact time.

Let me say, however, that the two volumes of the subcommittee of the Committee of Fifty have been carefully read and annotated by me, and that I have been thoroughly familiar with the *New Century Physiologies* since their publication two years ago, and that I heartily indorse them. No textbook, on any subject, has yet pleased every one.

As your committee on stimulants and narcotics base their report on the "Conclusions" of the subcommittee's report of the Committee of Fifty [1: XIX–XXII]—in fact, attach to them so much importance as to include them as an appendix to their own report, I wish to call your attention to a few facts accessible to any who may study the situation.

The subcommittee states that its object has been "to ascertain the effects of the occasional or habitual use of a moderate quantity of wine, beer or spirits upon the health and working powers of man" [1: XIX]. That was undoubtedly one of the reasons for the investigation made and data collected, but another reason found on page 45 [v. 1] gives the underlying principle of the origin of this self-appointed Committee of Fifty. In speaking of the failure "of the attempt" to remove the study of physiology, hygiene, etc. from the Massachusetts schools, this committee declares that "In this struggle the Committee of Fifty should speak with no uncertain voice." Again this reason for compilation is found in some of the responses received from European authorities, who knew nothing of this phase of our educational laws, save what the compilers wrote them. Professor C. von Voit, Munich, wrote to the committee, Dec. 11, 1898, "You were so kind as to inform me of a movement which aims to calm the exaggerated agitation of the temperance questions, etc." Another writer said [1: 89-90], "I was quite shocked when I read in Hodge's letter which he wrote at the request of the Committee of Fifty, that in the primary and middle grades every child from 6-17 years is instructed 250 hours in the physiology of alcohol." He had been told what was not true. A glance at the various state laws in volume 1 [p. 95-125] will show even the casual student that the word lessons not hours, is invariably used. The study in question is not the physiology of alcohol, but physiology and general hygiene, only about $\frac{1}{5}$ of the whole being instruction as to the nature and effects of alcoholic drinks and other narcotics. There is no requirement of 250 hours of instruction even in the whole subject of physiology and hygiene. Even the most stringent law [Illinois]requires but 330 lessons, not hours, which is a very different matter. There is no legal requirement as to the length of lessons in this subject. 10 minutes is the average length of any lesson in the first primary year, 15 minutes in the second and third years, and 30 minutes in grades above the primary. Therefore, the 330 lessons required for the study of physiology and hygiene take about 140 hours in all of a probable school attendance of 7200 hours, less than 2% of the whole. Only one-fifth of even this small amount of time need be given to temperance matter, that is, about 28 hours in 9 years, or an average of 3$\frac{1}{9}$ hours a year. This is a case of simple arithmetic, and there is no cause for a false statement such as was sent to European scientists—unless evidence against our system of education was desired by the Committee of Fifty. This cause can partially explain the discrepancies between the "Conclusions" which your committee have distributed in the audience this afternoon, and the investigations made by some of the experimenters under the direction of, and whose funds were supplied by, the Committee of Fifty. For these experiments I have warm words of praise and find them a most valuable addition to the research material on the alcohol question.

My only regret is, that these experimenters, scientists, should lend themselves as a cloak to the Committee of Fifty in shielding the real purpose they had in organizing themselves into such a committee. But since they have unintentionally put into the hands of those who uphold the laws which they seek to weaken, such valuable testimony and scientific data which prove the wisdom of our state and national educational laws, we can afford to be generous.

Permit me, briefly, to illustrate some of the discrepancies referred to a few minutes ago.

Paragraph 6, first two sentences read as follows: "The question as to whether a given alcoholic drink is a food or a poison is one that can not be answered by any short comprehensive formula. In moderate quantities, beer, wine and diluted whiskey are, in a certain sense, foods; etc." In volume 1, page 83, A. Fick, of Wurzburg, writes, Nov. 3, 1897, "I consider instruction upon the effects of alcohol very advantageous. I believe that this instruction must lay special stress upon the undeniable truth that alcohol is under no conditions and in no amount beneficial to the healthy body."

Paragraph 7, first line and a half: "Alcoholic drinks in moderate quantities may be used as restoratives in fatigue after work is done." In opposition to this, I would quote one of the Committee of Fifty's own experimenters, John J. Abel M. D. who writes as follows:[1] "It will be seen that alcohol is not found by psychologists to increase the quantity or vigor of mental operations; in fact, it clearly tends to lessen the power of clear and consecutive reasoning. In many respects, its action on the higher functions of the mind resembles that of fatigue of the brain; though with this action is associated a tendency to greater motor energy and ease."

Paragraph 8. If your committee on stimulants and narcotics had carefully read this paragraph, had analyzed the "Cambridge Statement" [1:18], and studied the *New Century Physiologies*, as well as read the testimony of those whose letters are incorporated in the subcommittee's report, I do not believe that you would have heard them call this subcommittee's investigations "fair and unprejudiced."[1]

---

[1] Pharmacological Action of Ethyl Alcohol. 11:141.

The Cambridge statement misrepresents the attitude of the modern indorsed textbooks, and then criticizes this assumed position. The subcommittee tries to lessen the real scientific rank of those Europeans who favor total abstinence or scientific teaching of the nature and effects of alcohol and other narcotics in relation to the subjects of physiology and hygiene [v. 1].

Has your committee read on page 3 of volume 1, the statement which the subcommittee of the Committee of Fifty makes (in their criticism of textbooks) to the effect that they "shall make but little reference to recent investigations which have not yet found their way into standard (medical) textbooks," and can your committee will consider the subcommittee "fair and nonpartizan." when it thus compares the up to date indorsed textbooks with old medical books, and because of the difference found, declare modern textbooks inaccurate, though the latter are in harmony with the results of modern experimenters? Time forbids many more citations which would throw light on this committee and its work.

The report prepared by Dr H. P. Bowditch of Boston, and Prof. C. F. Hodge of Worcester Mass., on the present instruction on the physiologic action of alcohol, is believed to be a correct representation of the facts, and to justify the conclusions that much of the so called scientific temperance instruction in the public schools is unscientific and undesirable. It is not in accord with the opinions of the leading physiologists of Europe as shown by the statement printed on page 18 of volume 1 of this report. This appears to us to be a matter of grave importance.

Paragraphs 9 and 10 will be answered elsewhere in my discussion, though I shall say in passing (in reference to paragraph 10), that a body of scientists weaken their arguments when they show they are ignorant concerning the subjects they are supposed to "discuss."

The one plan which has always been favored and executed in the indorsed books, has been the teaching of the nature and effect of alcohol and other narcotics in connection with the various divisions of physiology and hygiene,[1] instead of throwing all temperance matter into a few pages at the back or front of textbooks, as advocated by your own committee, I believe.

---

[1] Pharmacological Action of Ethyl Alcohol. 11:141.

So far, I have heard no argument against the law itself, which can stand fire. The point which disturbs the Committee of Fifty and your own committee too, is that the children are taught today that total abstinence rests on a scientific basis. Why do they not confine their attacks to modern investigators who have handed down this fact from their laboratories? The law simply states that the nature of alcoholic drinks and other narcotics shall be taught, leaving to experts to declare what that nature is. I would like to ask how many of the teachers present are personally acquainted with the text of the Ainsworth school physiology law of May 27, 1896. The law does not specify the length of lessons, nor in what way the number of lessons shall be arranged in the curriculum, whether by lesson groups, or singly or otherwise. The arguments against the use of textbooks are specious ones, and so, illogical. Textbooks in the hands of good teachers--and New York has many such—are aids only, and never can become their masters. Such technical knowledge of physiology and hygiene, the nature and effect of alcohol and other narcotics, are not subjects which so readily become "common knowledge" as the facts in geography, etc., and so the conscientious teacher welcomes as a friend in need, an up to date textbook on these subjects which bear so vital a relation to the child's life.

As has just been stated, textbooks serve as one source of information, saving the conscientious teacher much work in gathering together the needed information for teaching the subject intelligently to her class, and thus share, somewhat, the responsibility toward her pupils for correct study material.

The report says that the teacher regards the textbooks as ill-arranged, partizan, exaggerated or inaccurate. I ask, "To what textbooks do they refer?" If teachers are using the textbooks printed in the last century, and many are, it is possible that, in the light of scientific knowledge and skill of today, some of the above criticisms may be true, however well the books served their purpose in their own time. I have asked for reviews of the *New Century Physiologies,* 1901, for instance, by volume and page, which shall prove the above criticisms just and well founded. The offer is still open.

---

[1] *See* Ainsworth school physiology law, 1896, §1, ¶19.

Permit me to read a paragraph from the reply to the Committee of Fifty, advance sheets of which reached me this morning from the New York State Central Committee, which is in harmony with what I have just claimed:

> We respectfully recommend that the subcommittee make a careful study of the experimental evidence on the alcohol question brought out by their own investigators (Abbott, Chittenden, Hodge, Welch, Abel and Atwater), compare this with the work of other investigators in these fields, and this with the teaching of what they call their standard medical textbooks. When this is done, they will find that the "disadjustment" of which they complain is between recent experimental findings and the old medical literature into which the results of this recent work have not yet "found their way." The indorsed textbooks are in harmony with recent evidence rather than with old opinion.[1]

Those who advocate the theory that all physiology teaching should be confined to the upper, intermediate and grammar grades, lose sight of that great underlying principle in education so strongly expressed in the sentence: "Education is not a preparation for life, education is life!" The object of the study of physiology and hygiene is to influence the children's habits, of which new ones are forming every year. To do this, the study must run through the habit-forming years, and, like other progressive branches, be graded to the child's growing comprehension; in this way there is no "senseless repetition." It is often true that the teacher's influence is the only good influence under which the child is ever brought. How important it is, then, that she should not delay teaching him facts about his body and its care till he shall have reached the intermediate grades and have already formed bad habits which might have been avoided by an honest presentation of the required subjects.

---

[1] Reply to the physiologic subcommittee of the Committee of Fifty, p.17. [Advance sheets]

As Dr P. A. Levene of New York expresses it in the report of the Committee of Fifty, "All we can tell to the (college) student, we can also tell to the primary boy, if we know how." [1: 59-60] The textbooks aid the teacher in knowing "how." Every good catholic in this audience appreciates the value his church places on the early influences on a child's whole life.

For this reason, if for no other, New York State can not favor the present Connecticut temperance education law which became operative Sep. 1, 1902, little more than a year ago. The real results of teaching under it can not, of course as yet be determined. But any law which deprives the child of instruction in the subject of physiology and hygiene on the same basis as other required studies in the curriculum till the fourth or fifth year of school, and makes such instruction even then for two years but oral and also takes the study from the high school boys and girls, is a weakling among laws, and defeats the very purpose for which it was made.

The committee speaks of antagonism. It is possible that some of you feel that way toward us, but our attitude is not one of antagonism. Too many of us have been teachers, are teachers, or are too intimately, in other ways, connected with school problems, to feel other than closely bound to you. We believe—know—that too large a number of teachers do not thoroughly understand the law and its requirements; are given prejudiced views in relation to the whole subject by those who should be their leaders in giving the law a fair test; are compelled by school boards or others to use antiquated textbooks and poor apparatus; and we are not surprised that those of you who are teaching under such conditions, should desire a change "in the present scheme of education." We are not in favor of the present "scheme," and desire a change too, but perhaps not the same kind of a change as your committee means, and I wish to make the suggestion that the logical action to be taken by your association in consequence of the fact that there is so much misunderstanding and misconception on the part of various people regarding the true condition of affairs, that you move the appointment of a joint committee of your representative members on the one hand, and an equal number of representative members of my organization. I believe I can assure you that my state organization would act in such a committee as that. Your committee made an investigation two years ago, and arrived at certain conclusions. The New York State Central Committee made an investigation the same year and received entirely different results. Thus it will always be, I believe, till we do study this question together. Till such action is taken, and the law is tested under the best possible conditions, it would be wise as well as politic, to make no motion looking toward an amendment of the law. If under the best possible conditions the law should prove by its "fruit" its inefficiency to bring about the result for which it was called into existence, you could find no one readier than the temperance people in working for its amendment. Till such proof is given, however, it will be better to give the law an honest test and thus prove your sincerity as to the results for which your committee is working. The New York State Woman's Christian Temperance Union contains about as many members as there are total number of teachers in the State, and we are but one organization among others interested in this particular law, to say nothing of the great unorganized body back of us all, the people, whose law this is.[1]

Tuesday afternoon

ZOOLOGY IN THE HIGH SCHOOL

BY GEORGE H. HUDSON, PLATTSBURG NORMAL SCHOOL

The purpose of the study of zoology and its value in a school curriculum are things which change with change in our environment.

Speaking 10,000 years ago I should have insisted that the zoologic knowledge of greatest worth was that which dealt with the manners and habits of our four-footed and other animal relatives. Important questions of those days were: how can I most successfully capture fish, fowl, or beast for my food; what can the animals give me of their store of wisdom; will feeding a troublesome shark with the baby make the former a member of the family and so secure its father from attack; and what is one to do when he accidentally meets a saber-toothed tiger, and discovers that his most potent charm is no longer hanging from his neck?

---

[1] The above discussion was based on the second preliminary report of the committee on stimulants and narcotics, and with the latter, formed a part of the "proceedings" of the association. The final report was not presented at that time, nor acted on by the association as a whole.

Three thousand years later my efforts would have been to persuade you that to have a sheep or ox so used to the presence of man that it might easily be killed with a club when desired, was more practical if not more noble than the hunt or the pitfall; and that having a scapegoat for sins and diseases where one could place hands on him without delay was a distinct and additional advantage. At that age of the world's progress we no doubt would have discussed the comparative value of driving the scapegoat away for many miles to insure against return, or the quicker and easier dispatch to a country from which return was still more doubtful, and we probably should have ended by making a compromise like that practised in Leviticus. Another important question would have been whether or not the ground for the annual harvest could be as thoroughly fertilized (in the old sense) by killing and planting a goat, as by killing and planting a man, providing the same ceremony was carefully performed. Later I might have asked for a more careful presentation of the anatomy of the contents of the coelom in its relation to the character of the coming season and to coming tribal and personal events, and I should have pointed out the need to teach the special dwelling place of the spirit, and the location of the rooms in the body usually occupied by unbidden ghosts, that they might be successfully driven therefrom by disagreeable internal or external applications.

After the time of Hippocrates, great stress would have been placed on the need of a better knowledge of the nature and cause of disease, and I should have insisted that it was a teacher's great privilege and duty to bring the general public to appreciate the fact that broken bones could be more successfully treated by a competent physician than by prayers or gifts to the gods. I need go no further. You can fill in the introduction of collecting, using analytic keys, classifying, dissecting and sectioning. That is about where we are now, but the science of biology has swept on to new and greater things. The proper study of animal or plant now yields us knowledge of the great laws that govern all growth and all development. It has read for us the long past history of the race with a certainty far surpassing any tradition or treasured lore of any people that ever lived on earth. It goes further still, and not one whit too strong are the lines of Tennyson,

> Flower in the crannied wall,
> I plucked you out of the crannies;—
> Hold you here, root and all in my hand,
> Little flower—but if I could understand
> What you are, root and all, and all in all,
> I should know what God and man is.

From the primitive gifts of food and clothing we have passed to gifts relating to our mental and ethical development and now we ought to teach the new gifts, that our students may begin to live a life for the higher things in it.

You may say that the former threshing has in most cases left the greater part of the grain still in the straw; that a fly or mosquito may be every bit as dangerous as a tiger; that there are animals yet to tame and turn to our use as servants or companions; that the field of animal habit and mental attitude is but lately opened; that the need to teach the public that broken bones and contagious diseases are best dealt with by an educated physician, is as great as ever; and that too few know that the best of all charms to ward off disease is the charm of absolute cleanliness. These things are readily granted, but I point to the law of Cope and Hyatt, the law of acceleration, and I congratulate you on the fact that something is now done along these lines in the earlier years of school life under the name of "nature study."

A sound zoology has so much to yield that it should be given every student who secures a high school education, but today it absolutely demands that maturity of mind that only the last year of the high school can give. This is the year that should be devoted to it. Historically physics and chemistry preceded it, and logically they must of necessity precede it. They are its foundation stones. Digestion, osmosis, assimilation, combustion and other fundamental life processes can not be properly understood without them. To grasp the real value of the study requires a mind already trained in the ability to observe and interpret facts.

We are living in a very peculiar period of the world's history. The foundations of old faiths have been distinctly weakened and there seems to be no new bread for the hungry. Of that reasoning animal supposed to bear the royal stamp of God's own image, thousands and tens of thousands, yes millions, are led like sheep after new faiths with which to quiet an uneasy mind, or new patent nostrums to heal some diseased portion of their physical being. It is a sorry commentary on our system of education if we call *these* people educated. With the sciences well taught a student should begin to grasp the idea of the comparative value of evidence. He will come to see that faith is the more valuable, the more complete and trustworthy the evidence on which it is based till faith passes the boundary set by definition and becomes knowledge. Few realize how much of a scientist's work is done through faith. Many scientists still hold that the evidence for molecules and atoms is far from complete. Some even call in question such laws as those of the indestructibility of matter and the conservation of energy. We perhaps can not yet give conclusive proof that the newly discovered laws of nature are unchanging but we have faith that they are, and it is on a faith of this type that we build a steel bridge, and a sound civilization. Teach that God's greatest gift to man is the power to discover the constant in the seemingly inconstant, that there are things in this world on which we *can* depend, it may help us to make men and women on whom we can also depend. To my mind there are many scientific courses that fail to place this stamp on the material that comes from the mill, and I believe that for this age it is the stamp of greatest worth.

Other reasons for placing the study of zoology last in the high school course, such as the necessary and valuable study of reproduction, would lead me also to advocate the arrangement of the course itself so as to have it begin with one celled forms of life and proceed along phylogenic lines to higher types. If one says this is not the historical method, let him reflect that we do not get all our education in the school. We have had the historical method. We studied mankind first in the person of mother or nurse, our next animal was very likely a dog, cat or horse, and from these we no doubt passed to birds. It may be true that our blanks for the epitome of our ascent might have been filled in a little more fully and this we may now expect our "nature study" to do. Through the help of the law of acceleration our high school students have arrived at modern times, and there remains no reason why they may not take up their zoology from the higher stand of animal history. If you begin with the amoeba you may get so interested in the history of change in form and the laws involved that you may not have time enough left for the dissection of your cat and if you do not I shall say "so much the better." I have taught biology for more than 15 years and have dissected cats, rats and frogs, but I feel that *the dissection of the simpler invertebrates in high school work pays much better.* Students who have done good invertebrate dissection will be glad to avail themselves of the deeper knowledge to be gained through vertebrate dissection, and they will be prepared for such work. This they should have in their college course. In my earlier work I have seen girls faint when a snake was brought into class, and I have seen them made sick over the dissection of a frog. I now feel that I have made a change for the better in my work. In my last class there was a young lady with some form of heart disease, as certified to by her physician. She was very sympathetic, and had an inherited and well developed horror of worms and insects. She believed that her course in biology was going to be a source of constant torture to her. Unknown to the rest of the class she took pains to wash her rhizopods and infusorians back into the jar from which they were taken, yet Volvox gave her pleasure even though in mounting she had crushed some colonies with the cover glass. Hydra became a marvelous creature, and she did not object to giving one a dose of methyl blue in order to obtain good nematocysts for drawing. The reproduction by budding was strange and still more strange the production of so many small spermatozoids and the larger ovum. The body came to have a meaning, and the variety given it by Eudendrium, Clava, Campanularia, Sertularia, Obelia, Aurelia, Dyphes, the sea anemones and the corals was a new and wonderful story, and each form in turn said "evolution" in clear and unmistakable accents. We had living sea anemones and corals and we have them still. The keeping of a salt-water aquarium for a few weeks is not a very difficult matter and will well repay the time and expense given it. The young lady who could not bear to touch a worm came voluntarily to stroke one to feel its setae, helped to dissect one, and made a drawing of its internal anatomy. This monoecious form, which was so strangely provided with the means of securing a cross inheritance for its young, seemed to have had a stamp of dignity, purity, or divinity given it, and a review of Darwin's work on the group served to emphasize its importance in the world's work. The study of Nereis and of parapodia followed, and after this the students collected living myriapods, studied Lithobius and then passed to the dissection of the lobster. Particular stress was here placed on the modifications of the appendages, and these were compared with those of other members of the group and with Beecher's restoration of Triarthrus beckii. The reproduction of the form was given and the modification of embryonic stages noted.

It was a matter of pleasure to see how the study of the worm had enabled the students to grasp so quickly the essentials of the anatomy of the lobster, and to note how much their pleasure had been enhanced through the possession of a foundation for the exercise of apperception. This logical sequence developed an interest that practically banished from the work all painful or disagreeable impressions. Taken this way, one develops that power of judgment on the evidence before one, which the race needs for its redemption. Taken from the highest forms down you may impress the facts on the authority of the text or on your own *ipse dixit,* but the field will from the start be so complex for the student that not for a moment will he dare let go the hand of his guide. This course tends to develop that type of mind that will follow any other leader, and the majority of those so taught will for ever quote teacher or text as their authority at least so far as interpretation is concerned. In place of any but the simplest vertebrate dissection it were better to give enough vertebrate histology to show that complex as the body is, it is still built as are the simpler types and is by no means an insoluble enigma.

Lastly let me urge the necessity of teaching zoology as a science. One may teach chemistry in order to impart the very valuable fact that hydrochloric acid dissolves zinc. He may have a higher ambition and desire to make his students the happier for the rest of their lives by showing them that the ratio between the weight of zinc used and the weight of hydrogen obtained never varies. Why do we teach that the decomposition of water yields weights of oxygen and hydrogen in the ratio of very nearly eight to one; that the ratio expressed in volumes is one to two; and that three volumes of hydrogen and one of nitrogen yield two volumes of ammonia? These things are not introduced for their interest as facts, but for a clear and definite purpose, and that purpose is to demonstrate the laws of definite, multiple, equivalent, and gas-volumetric proportions, and we pass to other laws with the same careful and purposeful selection of facts. Are our facts in zoology chosen for a similar purpose? But the laws in chemistry are not the final aim of the study. They are given for a still higher purpose, and that is to lead our students through that mental process which gave us our conception of the molecule, the ion, the atom and the corpuscle. It is possible that these concepts may be changed, but whether changed or not they have achieved something for the race. By their aid we have been enabled to postulate new compounds and then make them. They have made modern chemistry what it is today and modern chemistry has been a very important factor in our recent progress as a race. A process of thought that can achieve such grand results is a process of thought that we wish our children to be able to take and follow by themselves. So followed it will make our children appreciate what true evidence is, give them the power to use it, and so build for them a character. I have not spoken for that so called chemistry which simply tries to follow a certain fixed process in order to discover what the teacher has dissolved in a bottle of water. That course is but another to help make obedient followers.

Now if we would have our zoology take higher rank as a science, we must have our facts introduced not alone for their interest or value *as facts* but for the purpose of demonstrating zoologic or biologic laws. And lastly we must not be content with the mere presentation of the law but must use it in helping us to grasp the greatest and grandest of all modern concepts, the concept of evolution. If we can give our course this character it will be worthy the name of science and we shall succeed in making for a type of civilization that is distinctly higher than any the world has yet seen.

To briefly recapitulate—I would place zoology in the last year of the high school course, leave to the department of nature study much of the material formerly taught under this head, begin the work with unicellular forms, have most or all the dissections confined to invertebrate forms, use the facts in a systematic way to demonstrate laws, so use the laws that the students may adequately grasp the concept of evolution, and I should point to that concept as the corner stone of a new era in the social and ethical development of man.

Prof. W. M. Smallwood—We have come to recognize the value of chemistry and physics and give to each of them a full year in the high school curriculum. We hope that the time is soon coming when the same recognition will be given to the biologic sciences. As to the manner of teaching zoology there are many different opinions. In Syracuse University in the beginning course, we find that the students have to be taught to see things and we usually begin with one of the larger organisms, such as the frog and gradually work down to the unicellular forms. While I grant that a study of Protozoa creates an interest at the very outset, yet the student can hardly derive much from this study because he has not been trained to observe and compare.

So far as the idea of evolution is concerned, it really matters little how the course is conducted as each general phylum must be taken up as a unit. This is specially so since the authorities can not agree as to the phylogenetic relationships.

Let us emphasize the ecology work in the high school and place less stress on the dissections. This will remove much of the just opposition to the introduction of up to date zoology and, I believe, will accomplish an equivalent amount of training.

DIAPHRAGM APPARATUS

BY BURT G. WILDER, CORNELL UNIVERSITY

Prof. Burt G. Wilder of Cornell University illustrated the action of the diaphragm in respiration by means of an apparatus consisting of a bell jar welted at the larger end; this end is closed by a thick rubber sheet; the smaller end is closed by a rubber cork with two holes; through one hole passes the glass tube representing the trachea to which is attached a rubber balloon or the lungs of a cat or other small mammal; the other hole is covered by a bit of thin rubber acting as a valve. When the rubber diaphragm is forced up into the jar by pressure on a convex mass, e. g. half of a croquet ball, the displaced air escapes through the hole guarded by the valve; when the pressure is removed the diaphragm contracts, becomes less convex, and the formation of a vacuum is prevented by the entry of air through the trachea and the expansion of the lungs.

Essentially the same apparatus was first exhibited before the Boston Society of Natural History in 1878 and described in its *Proceedings*, volume 19, page 337. It was figured in Wilder and Gage's *Anatomical Technology* in 1882. With this earlier form the initial escape of air from the jar in order to permit the ascent of the diaphragm was provided for either by removing the cork or by having the cork perforated by a second tube to the upper (extrathoracic) end of which was attached a bit of rubber tubing controlled by the fingers or a pinchcock; the rubber value was suggested in 1892 by E. C. Stillwell, janitor of the department of physiology, etc. The bell jar with a long and wide neck was made by Whitall, Tatum & Co.

Wednesday morning, Dec. 30

REPORT OF COMMITTEE APPOINTED TO PREPARE A SYLLABUS FOR SECOND YEAR PHYSICS

BY E. R. VON NARDROFF, CHAIRMAN ERASMUS HALL HIGH SCHOOL BROOKLYN

As elements in the course we contemplate problems, demonstrations, discussions and laboratory exercises. No one of these elements is to be given first place, but each is to be subordinated to a general logical plan. Our plan has been to develop all the important material that experience and inquiry have shown is usually omitted from a first year course, though presented in many high school textbooks. In addition we have planned to include a few other elementary topics, either because of their importance or peculiar interest, or for the purpose of rounding out the course. In choosing laboratory experiments we have specially considered the lesson in pure physics they teach, and have sought to exclude those that are purely technical in character or that tend to conceal the physics involved behind a mere mathematical maze. Our plan, too, has been to present a course in pure physics rather than a preparatory course for mechanical or electrical engineering.

It is intended that a large proportion of the topics mentioned should be covered in one year, allowing a minimum of five periods a week, two of which are to be spent in the laboratory. Nearly all the demonstrations mentioned, or their equivalent, should also be covered. This means a great amount of constant preparation on the part of the teacher; also much skill. About 30 laboratory exercises should be performed, and to preserve proportion in the course, each division should be represented by at least two exercises. Problems may be arranged using the laboratory exercises as a basis, but it is suggested that it is desirable not to so overload the course with problems as to leave little or no time for full discussions of the subject in its qualitative and practical aspects.

At present no textbook adapted to the course seems available, and so the teacher will have to depend largely on mimeographed notes. For the laboratory exercises, however, much trouble may be saved by placing in the laboratory the leading laboratory manuals.

The following may be recommended: *Practical Physics* 3 volumes by Stewart & Gee, published by Macmillan; *Physical Measurements* by Kohlrausch, published by Appleton; *Systematic Electrical Measurements* by Parker, published by Spon & Chamberlain; *A Laboratory Manual of Physics and Applied Electricity*, 1st volume, by E. L. Nichols, published by Macmillan; *A Manual of Experiments in Physics* by Ames & Bliss, published by American Book Co.; also many others will be found available.

Outline of course

1 Properties of matter and molecular physics

TOPICS	DEMONSTRATIONS	LABORATORY EXERCISES
Magnitude		1 Estimations of $\frac{1}{10}$s and $\frac{1}{100}$s 2 Micrometer caliper 3 Spherometer, lens 4 Optical lever $\frac{1}{20000}$ inch
Weight		5 Accurate weight, Gauss—swings
Ductility	Draw down thick wire to thin	
Malleability	Roll tin Transparency of gold leaf	
Viscosity	Sealing wax	
Crystallization	Sulfur from fusion Alum from solution Iodine by sublimation	
Surface tension		6 Surface tension of soap water by rectangle and balance
Capillarity	Law of dia.—tubes Law of distance—plates	
Diffusion		7 Law of efflux of gases, H and Co_2
Osmosis	Sugar solution Coal gas	
Tenacity		8 Law of transverse breaking strength

2 Mechanics of solids, liquids and gases

Absolute units of force		
Erg, foot-poundal, etc.		
Moment of inertia		9 Rings and bars (Kelvin)
Laws of gravitation		10 Value of g to within $\frac{1}{4}$%
Pendulums	Huygen's law	
Pneumatics		11 Take air pump apart 12 Plot curve of exhaustion-strokes 13 Smithsonian barometer temp. correct 14 Hights with aneroid 15 Density of dry air

3 Sound

Vibration		16 Fork to within $\frac{1}{8}$ %
Velocity		17 Velocity in metal rods 18 Velocity in H and Co_2, Kundt tube
Doppler's principle	Swing fork, high pitch	
The voice	Phonograph records developed	
Interference		19 Measure wave of whistle (Raylight)

Outline of course (*continued*)

3 *Sound* (continued)

TOPICS	DEMONSTRATIONS	LABORATORY EXERCISES
Difference tones	Two tin flutes	
Harmony and discord	Beats	
Combination vibs.	Vibrating string, lantern, mirror	20 Lissajous' figures
Transverse rods		21 Rod fixed on end, determine overtone
Chladni plates		22 Six figures with conditions
Sensitive flames	Tyndall's and Barry-Geyer	
Refraction	Bubble N_2O, flame, whistle	
Timbre	Helmholtz resonators	

4 *Light*

TOPICS	DEMONSTRATIONS	LABORATORY EXERCISES
Optical instruments	Stereoscope	23 Magnifying power of microscope or opera glass
	Spectacles (astigmatism)	
Lenses	Spherical aberration	
	Chromatic aberration	24 Focal length of flint for different spectrum hues
	Achromatic lens	
	Achromatic prism	
	Direct vision prism	
Rainbow	Sphere of flint glass	
Concave mirror	Caustic curves	
The spectrum	Absorption spectrum—various	25 Line spectrum, metallic vapors
	Reversal of Na line	26 Identification of metals in mixture
Color mixture	Van Nardroff's color apparatus	27 Plot Fraunhofer lines
Pigment mixtures	Color mediums in lantern, spectrum	
Contrast	Lantern	
Interference of light	Colors of thin plates, various	28 Diffraction fringes slit, narrow obstacle, straight edge, disk
	Biprism (Fresnel's) and inclined screen	29 Wave length Na, grating
		30 Dia. lycopodium particles by diffraction pattern (Young) test with microscope micrometer
Polarized light	By reflection, transmission, double refraction, Nicol, tourmalin	31 Angle of polarization of water
	Strain glass	32 Record and explain colors of selenite, using spectroscope and various positions
	Heat glass	
	Unannealed glass	
	Starch in microscope	

Outline of course (*continued*)

4 Light (continued)

TOPICS	DEMONSTRATIONS	LABORATORY EXERCISES
Phosphorescence	Balmain's paint, warm	33 Phosphoroscope (Levison's) willemite, ruby and pectolite
Fluorescence	Magdala red, fluorescence. etc.	
Thermo luminescence	Chlorophane	
Ultraviolet light	Wood's screen Spectrum (quartz train) sulf. quinine, Ba Rt Cy etc.	
	5 Heat	
Infra-red rays	Absorbers, radiators, reflectors, diathermancy	34 Compare radiators 35 Compare diathermancies
Radiometer	Radiometer, work both ways	
Mechanical equivalent		36 Joule's mech. equiv. to within 5%
Heat of combustion	O-H flame	
Expansion	Thermostats, Harrison's pendulum, balance wheel watch	37 Expansion mercury rel. to glass 38 Absolute exp. mercury
Regelation	Two blocks ice Ice and wire	
Hot air engine	Working model	
Gas engine	Working model, 4 cycle	
Temperature	....	39 Measure high and low temps. with Pl. res. therm.
Sat. and unsaturated vapors	Ether in barometer, warm water	40 Curve of vapor pressure of water from 50° C. to 100° C.
Heat by compression	Fire syringe	
Cold by expansion	Formation clouds	
Max. and min. therms.	Weather bureau patterns Clinical thermometer	
Annealing of glass	Prince Rupert's drop Bologna flask Paper weight or cheap glass in polariscope	
	6 Electricity and magnetism	
Laws of mutual action of currents	Parallel, opposite and crossed currents Deflection of current by magnet	
Magnetism	Single loops sets E and W Solenoid sets N & S	41 Determine angle of dip by reversing needle and magnetism
	Magnetism induced by earth	42 Determine M × H
	Thermo-magnetic motor (nickel)	43 Determine M / H

Outline of course (*continued*)

6 Electricity and magnetism (continued)

TOPICS	DEMONSTRATIONS	LABORATORY EXERCISES
Static electricity	Short duration of discharge Mechanical effect of discharge Heat effect of discharge Theory of condenser, illustrate Distinguish between potential and surface density	44 Arrange 5 substances in static-electric series
Thermo-electricity	Simple junction, iron and copper Thermo-pile — galvanometer Thermo-battery—bell	45 Make thermo-electric diagram of two metals
Chemical effects	Electrotyping Accumulator = 2 lead plates in dil. H_2SO_4, bell	46 Faraday's law with H, Cu and Ag (Don't regulate current, but place 3 voltameters in series)
Heat effects	Nernst lamp glower with and without ballast—use Bunsen Nernst lamp Cooper-Hewitt lamp Electric blasting fuse Thick and thin wires, const. C or V Electric gas lighter	47 Watts per candle power of lamp (incandescent) run at different voltages 48 Heat equivalent of electric Joule to within 2 %
Magnetic effects	Magnetic cut-out Hotel annunciator Magnetic door latch Para-magnetic and dia-magnetic substances (electro magnet)	49 Hysteresis curve of iron 50 Horse power and total efficiency of motor with varying load
Electric measurements with *good* voltmeter and ammeter, allowing for resistance of instruments		51 E. M. F. and resistance of Daniel cell with ammeter and resistance box 52 E. M. F. and resistance of Daniel cell with voltmeter and resistance box 53 E. M. F. and resistance of Daniel cell with voltmeter and ammeter
Condensers		54 Capacity of condenser by comparison with standard—High res. bat.

Outline of course (*continued*)

6 Electricity and magnetism (continued)

TOPICS	DEMONSTRATIONS	LABORATORY EXERCISES
Self-induction	Kick coil (cigar or gas lighter)	55 Sel-finduction of coil by comparison with standard (Wheatstone bridge, steady and interrupted currents)
Wireless telegraphy	Working model	56 Resistance of coherer, both stages
Electro-magnetic waves	Absorption, reflection, refraction, interference, polarization	
Electric discharge through gases	Stratification tube, showing Cathode layer, Crooke's dark space, negative glow, Faraday space and stratification of pos-column	
Cathode rays (electrons)	Heat focus tube Magnetic deflection Phosphoresence	
Roentgen rays	Photographic action Phosphorescing action Discharging action (+ and —) Relative penetration Hardness meter (Ag, and Al steps)	
Arc light	Regulating d. c. lamp	
Radium ($5 specimen)	A, B & G rays by photo of magnetic deflection Self-luminescence of Ba Ra Cl_2 Phosphorescence of Ba Pt Cy screen and willemite Phosphorescence of Sidots zinc blende (Spinthariscope Photographic action Discharging action (+ and —) Relative penetration	

Laboratory experiments

1 *Estimation of tenths and hundredths of a division.* Using engine-divided scales, estimate millimeters in a few tenths of an inch, and then check by seeing how many millimeters in the same number of whole inches.

2 *Micrometer caliper.* Measure numbered corners of square of plate glass, employing an accurate caliper such as made by

Browne & Sharpe. Estimate to tenths of a division on the head, and correct for zero error.

3 *Spherometer, lens.* An excellent spherometer is made by the Société Genevoise. A standard flat glass plate is necessary. Plate glass may be selected by an optical method for this purpose. A lantern condenser lens makes a suitable object, but a flatter lens is better.

4 *Optical lever.* A description of this experiment in an improved form will appear in *School Science* or elsewhere.

5 *Weighing by Gauss's method, using swings.* With a set of weights corrected by the teacher, excellent results may be obtained with a low priced balance, though agate bearings are desirable. Find the weight in grams of a standard ounce weight.

6 *Surface tension of soap water by rectangle.* Very concordant results are obtained with a balance reading to 1 mg, and a very thin brass wire frame 10 cm broad. The soap water may be held in a crystallizing disk. It should be deep enough, say 3 cm, to allow the whole frame, say 2 cm tall, to be immersed. Weigh the frame with film attached, the lower portion of the frame being under the soap water. Then weigh with film broken. It will be sufficiently accurate to measure the breadth of the frame over all and multiply by 2. If a thick wire frame is used, the circumference must be taken into account. Calculate tension for each cm of film.

7 *Law of efflux of gases H and Co_2.* A suitable apparatus will be described in *School Science* or elsewhere.

8 *Law of transverse breaking strength.* Screw rectangularly arched retaining blocks to table. Break wooden strips about ½ inch thick and 10 inches long by pulling up with 40 lb spring balance. Test law of thickness, length and breath.

9 *Moment of inertia by use of rings.* A suitable apparatus will be described in *School Science* or elsewhere.

10 *Value of g to within ½¢.* The best method is with the use of even a very crude Kater's pendulum, timing it by method of coincidences with a well regulated clock pendulum. Ten times the above accuracy may easily be reached with either an electric or optical device for recording coincidences. However, Professor Boys's experiment, in which a weighted smoked glass falls in front

of an accurately timed tuning-fork can yield good results. It has the advantage of avoiding any improved formulas.

11 *Take air pump apart and reassemble.* Any ordinary pump in good order will produce a half inch vacuum, as measured by an air-free gage, and will hold it with only a very slow leak.

12 *Plot curve of exhaustion.* Use receiver. Provide a branch tube between cylinder and plate, and connect with small heavy white rubber tubing to top of barometer tube. Plot curve with number of strokes (toward the last they may be taken in groups of 10) as abscissae, and with hight of mercury in barometer tube as ordinates. Above this curve plot a horizontal line corresponding to the reading of an ordinary good barometer.

13 *Smithsonian barometer.* Correct for temperature of mercury and scale. Make vernier readings.

14 *Hights with aneroid barometer.* The instrument must be of fine construction. Measure hight of laboratory window above ground and then test with tape.

15 *Density of dry air.* Use balance sensitive to 1 mg and a 5 liter dry flask. Exhaust partially with air pump provided with air-free guage. Disconnect from pump after temperature has become steady. Weigh. Allow air to return through drying tube and weigh again. Read barometer and thermometer. Calculate weight of liter of dry air reduced to oC and to 760 mm.

16 *Fork to within ⅕%.* Use a simple electric pendulum (platinum point sweeping across narrow mercury trough) to actuate an electric time marker made from a telegraph sounder. This marker should make its taps at one side of the fork record directly opposite the stylus of the fork. Receive the record either on a smoked brass drum or on a very long smoked plate glass strip running in finely made guides. With a good pendulum and with care about handling the fork so as not to change its temperature an accuracy 10 times the above may easily be attained. The fork when accurately rated may be used in Experiment 10.

17 *Velocity of sound in metal rods.* Use rods of aluminium, steel, and brass vibrated longitudinally with rosined cloth. Determine number of vibrations with sonometer string and rated fork. The length of the rod represents half a wave length. Calculate velocity.

18 *Velocity of sound in hydrogen or carbon dioxid.* Use Kundt's tube and cork dust or lycopodium. Pass the dried gases by suitable connections into the tube at the adjustable end. A very instructive and important experiment.

19 *Measure wave length of inaudible sound from a Galton whistle.* Use sensitive flame and get nodes and loops (after Rayleigh's method) by reflection of sound from vertical glass plate. Shift glass plate through 20 or 30 modes using meter rod as guide. The distance between two nodes is a half wave length. From the velocity of sound calculate the frequency of the whistle.

20 *Lissajous' figures.* Use any of the common methods. Two pendulums swinging at right angles to each other and arranged to leave a resultant trace on smoked glass give the finest results.

21 *Transverse vibration of rod fixed at one end.* Use a light steel rod, say 2 mm diameter and 30 cm long, clamped firmly in a very heavy vise. Determine frequency of fundamental and of four overtones by means of calibrated sonometer string. Also test half the length.

22 *Chladin plate.* A very flat brass plate, $\frac{1}{16}$ in. thick and 9 in. square, does well. If not perfectly flat a little judicious bending will improve it. The sand figures (sand must be well washed and the plate perfectly freed from grease) show up better if plate is stained black. Record 6 figures with conditions of clamping, damping and bowing. Use bass-bow, and have sharp edges of plate rubbed off with a fine file or emery cloth.

23 *Magnifying power of microscope.* For rough measurements view millimeter scale on stage with right eye looking through microscope and a millimeter scale 10 inches away directly with left eye. So control the eyes as to make the images overlap. Though very crude, this method may be carried out in a few moments. For better work use a simple camera lucida made of cover glass mounted at 45° in front of the eyepiece, the microscope being made horizontal. The eye is held above the cover glass and directed downwards. Ten inches below the eye is placed a millimeter scale. Modify the illumination of this scale so that it may be seen easily in superposition with the reflected image of the stage micrometer. Instead of a microscope an opera glass may be tested by the first method using as an object the iron bars of

a railing, the small glass panes of a window, or the bricks or stones in a wall.

24 *Chromatic aberration of a simple lens.* For the object use a bright distant light (arc, incandescent, or Nernst) and receive image on ground glass. To color the light place directly in front of the source several thicknesses of ruby glass for red, and a glass cell containing ammonio-sulfate of copper for violet. Find the focal length for each of these colors. Their difference divided by their average gives the longitudinal chromatic aberration.

25 *Line spectra of metallic vapors.* Use a spectroscope provided with a scale and plot the emission spectra of several metallic salts held in Bunsen flame.

26 *Identification of metals in a mixture of salts.* Limit the mixture to several of the salts studied in the previous experiment.

27 *Plot Fraunhofer lines.* Use a narrow slit and direct the sunlight into the spectroscope by means of a mirror. For observing the extreme lines it will be necessary to open the slit a little and cut off the flood of light either by several thicknesses of ruby glass or by a dense solution of ammonio-sulfate of copper.

28 *Diffraction fringes.* Suitable apparatus will be described in *School Science* or elsewhere.

29 *Wave length of sodium light with glass grating.* Excellent gratings on glass made by photographic reproduction are now procurable at low cost. Through the grating view an illuminated slit or lamp filament under which is placed a meter rod. Read off on the rod the position of the diffraction image and from the distance of this image from the grating calculate the wave length. The grating spacing must be accurately known.

30 *Diameter of lycopodium particles by means of diffraction figure.* Details will be given in *School Science* or elsewhere.

31 *Angle of polarization of water.* Details will appear in *School Science.*

32 *Phosphoroscope; determination of relative persistance of phosphorescence of several minerals by Levison's method.* Will be decribed in *School Science* or elsewhere.

33 *Compare radiators.* Use Leslie cubes, thermopile and cone, and calibrated low resistance galvanometer or milli-ammeter.

The thermo-pile must be shielded from draughts and allowed to cool off thoroughly between the determinations.

34 *Compare diathermancies.* Follow methods described by Tyndall, *Heat as a Mode of Motion.*

35 *Joules mechanical equivalent of heat to within 5%.* Simple apparatus capable of yielding this accuracy is now furnished by dealers abroad.

36 *Expansion of mercury relative to glass.* Use "weight thermometer." Easy to make from test tube.

37 *Absolute expansion of mercury.* Use method of Delong & Petit in simplified form.

38 *Measure high and low temperatures with platinum resistance thermometers.* Details will appear in *School Science* or elsewhere.

39 *Curve of vapor pressure of water from 50° C to 100° C.* Surround upper part of simple barometer with water jacket. Heat water in jacket by forcing in steam from below, controlling the flow of the steam by a three-way stopcock. A few drops of water may be introduced into the barometer from below by means of a dropping tube. The depression of the mercury may be read off by a scale fastened to the barometer inside the jacket. The water of the jacket must be agitated by a suitable stirrer and its temperature determined with a calibrated thermometer. In plotting use temperatures as abscissae and vapor pressures as ordinates.

40 *Determine angle of dip.* Use inclination compass and reverse the axis of the needle and also its polarity.

41 *Determine $M \times H$.* *See* Stewart & Gee.

42 *Determine M/H.* *See* Stewart & Gee.

43 *Arrange five substances in static electric series.* Details to appear in *School Science.*

44 *Make thermo-electric diagram of two metals.* Details to appear in *School Science.*

45 *Faraday's law, using H, Cu, and Ag.* Place the three voltameters in series. It is not necessary to regulate or measure the current; simply try to show that the amounts of the elements separated are proportional to their "combining weights."

46 *Watts per candle of an incandescent lamp run at different voltages.* Use good voltmeter and ammeter, and any form of photometer. Modify the voltage across the lamp's terminals by placing resistance in series, such as a water rheostat. Plot a curve.

47 *Heat equivalent of electric Joule to within 2%.* For calorimeter use gallon tin pail with tin cover, and supported on three corks. Fasten binding posts to tin cover and support coil of high resistance ("Krupp" or "Climax") wire. Arrange a simple stirrer to keep weighed water in pail of uniform temperature. Pass a calibrated thermometer through tin cover. Use about 1000 watts, and measure with voltmeter and ammeter. Correct for specific heat of apparatus, stem error of thermometer, and for radiation.

48 *Hysteresis curve of iron.* Use simple magnetometer with compensation coil, good ammeter, and rheostat. Plot curve.

49 *Horse power and total efficiency of motor with varying speed.* Measure watts supplied. Measure speed. Measure torque with Prony brake. Calculate power. Plot curved.

50 *E. M. F. and resistance of Daniel cell with ammeter and resistance box.* Correct for resistance of ammeter.

51 *E. M. F. and resistance of Daniel cell with voltmeter and resistance box.* Correct for resistance of voltmeter.

52 *E. M. F. and resistance of Daniel cell with voltmeter and ammeter.* Correct for resistance of instruments.

53 *Capacity of condenser by method of comparison with a standard.* Use high resistance ballistic galvanometer.

54 *Self-induction of a coil by comparison with a standard.* Use method of Wheatstone bridge, employing steady and interrupted (induction coil) currents.

55 *Resistance of coherer, both stages.* Use "Postoffice" pattern of Wheatstone bridge. Nickel filings may be used in a glass tube having $\frac{1}{16}$ inch bore. Brass terminals, amalgamated at their ends, should be led in. Different pressures may be tried.

Naturally to any one planning to try this course the matter of expense will arise. It is intended that the experiments should be of a higher order and accuracy than those usually employed in first year physics, and so the average cost of a single experiment will be greater. But on the other hand, since the pupil arrives at this second year's work with a general knowledge of physics, it is not so important to duplicate apparatus, though this may be done in a few easy cases in order to keep the class going. Most excellent ammeters and voltmeters may now be obtained from the Weston Electrical Instrument Co. for about $14; they only differ from the finest instruments in the appearance of the case, and in the accuracy of calibration. The internal mechanism is identical. Hans Heele, Berlin, furnishes an excellent spectroscope with the densest flint prism, telescope, and illuminate scale for $20. With a few good instruments of this sort as a basis, a teacher with some mechanical ability and $100 or so can work up a very worthy course. However, a few thousand dollars could scarcely be put to better use.

With one or two exceptions all the laboratory experiments mentioned in the list have been well tested by members of the committee, and are therefore presented with some degree of confidence. The same statement may be made with regard to the demonstrations.

Respectfully submitted

Ernest R. von Nardroff, *Chairman*
Erasmus Hall High School, Brooklyn
R. J. Kittredge, Schenectady Union Classical Institute
A. L. Arey, Girls High School, Brooklyn
O. C. Kenyon, Syracuse High School
C. N. Cobb, Regents Office, Albany

Committee

O. C. Kenyon—The present syllabus in physics is certainly a great improvement over the preceding one. Let us first acknowledge and emphasize that fact. I think, moreover, that as science teachers, we should congratulate ourselves on having at Albany a body of men who are so able, and so willing to listen to, and to adopt, suggestions that seem to be in the line of progress. I doubt whether any other state is so well favored in this respect.

The relative amount of credit for laboratory work, the choice of certain questions in the examinations out of a number, the character of the questions—in fact, everything connected with the Regents work has been to me satisfactory.

A pupil well prepared finds the examination easy as he should, while a careless or a poorly prepared pupil is likely to fail, either from selecting the wrong questions or else from answering thoughtlessly.

I am not in favor of a course in which there shall be little or no laboratory work. To favor such a course would seem to me like lowering our standard and taking a step backward.

I think, however, that the present course would be improved by arranging the laboratory and class work along parallel lines, by changing some of the easier, qualitative experiments from the laboratory list to that of the classroom, but specially by making the individual experiments the backbone of the work, as has just been suggested for the course in chemistry, the other subject-matter being chosen, first, to prepare the pupil for these experiments, and, second, to illustrate their practical bearing and applications in life, that part of the study which to a large number is the most interesting and profitable. Of course, there would be some subjects taught which are not suitable for individual experiments, such as the law of gravitation, but I would make these as few as possible.

If, also, a beginning could be made in correlating the subjects of physics and mathematics, by introducing into the latter study some of our purely mathematical work, a great advantage would result to both studies. Some of the laws of physics, specially those that need no elaborate or difficult experiments to make them understood—the laws, for example, of weight as related to distance, the lever, the downward pressure of liquids and of the atmosphere, the formulae for tenacity and specific gravity—could be used in algebra and geometry under the heads of the equation, ratio, proportion, and in problems. If, besides, the subject of variation, or how a change in one of two related quantities affects the other, could be taught, that, also, would help us much. Physics is such a difficult study to those who come to it poorly prepared that we are justified, I think, in asking this aid of mathematics, though, no doubt, the profit, as I said, would be mutual.

As another improvement, the time for the course in physics should be lengthened. At the first meeting of this association in 1896, I remember saying to Mr Arey, then of the Rochester High School, that physics ought to be a three term (a year and a half) study. Mr Arey agreed with me. I also said that for several years I had been making it such by leaving the major part of electricity till the third term, and teaching that as a separate study. This practice we have continued to the present time.

It would be better, as has been suggested by Mr Cobb, to include in the supplementary course some of the present first year work in other divisions than electricity, and to add enough additional material to make a full two years course.

In each of the divisions of physics there are many advanced or supplementary experiments and laws which, while well within the mental grasp of secondary pupils, are absorbingly interesting, as valuable for mental training, and much more helpful afterwards, than many of the other subjects taught in their place, and this is true whether the pupil is to go to college or not.

I wish to say right here, that I do not see why we should put in the background the argument of utility. We believe in it thoroughly; then why not use, and make the most of it?

The only way to teach physics properly in one year is by omitting many topics that a high school pupil should know. By teaching properly, I mean thoroughly. Every year I am more sure that what can not be taught thoroughly ought not to be attempted, at least not in science. Such teaching must result in giving pupils both vague ideas and a bad habit, that is, the habit of being satisfied with vague ideas.

Besides, the attempt to crowd many difficult topics into a too short time is likely to impart a distaste for the study, certainly a most undesirable result.

The addition of individual laboratory practice has added many important facts to the already large store of knowledge that our students have to acquire. First, the apparatus for this work is to quite an extent different from that of the classroom. It must be studied, described, and a drawing made of it. Some attention must be given, also, to the degree of accuracy of the instruments used and of the result obtained, to the proper number of figures to be kept in computations, and certainly a good deal of thought to sources of error or how a more accurate result might have been obtained, to omit which is to leave the pupil's mind in doubt as to whether a law has been really proven, or the reverse. All of this work demands time.

Important discoveries, inventions, and improvements in machinery are made each year, but who is able to teach worthily, for example, the subject of x-rays, or wireless telegraphy, or the gas engine, or the steam-turbine, or the properties of alternating currents of electricity, or the properties of radium, all of which are everyday topics? Or, if these are taught, which of the older, but quite as important subjects, are omitted?

Again, in order to make physics an interesting, real, and vivid study (and it is vivid ideas that last longest and count most in teaching), there must be a large number of class experiments, and not only the simpler ones, but often more complex apparatus is required which must be studied, drawn (if the work is done thoroughly), recited on; and all this before the study of the underlying principle, which is the real object sought, can be entered on.

For the reasons that I have given, and others, it seems to me that it would be taking steps in advance if the State, recognizing the difficulty and the importance of physics, should introduce into the course in mathematics some of the simpler physical laws, should arrange class and laboratory work along parallel lines, with special emphasis on the latter, and should extend the physics course to two years. The trend of opinion of teachers of physics throughout the country seems to me to be in these directions.

Prof. William Hallock—In general, I am very much in favor of the plan proposed, and believe that it will result in very satisfactory work, if it is conscientiously carried out under qualified instructors and with proper equipment. These two latter factors I believe to be the most essential for the success of this character of work in high schools. Whereas it may be possible for poorly qualified teachers to lead the student through the few elementary experiments required in the first year course, it is absolutely necessary that the second year work should be in charge of a person thoroughly qualified to present, not only the actual material which is required in the course, but to have such a command of the subject as to be able to follow up collateral points that are liable to arise at any moment, and in the successful discussion of which the teacher finds his best opportunity of holding the interest of the students and demonstrating to them that he has a reserve of knowledge beyond the immediate requirements, which must result in gaining their respect, and which is not possible so long as they feel that the teacher is telling all that he knows. With the grade of teachers now available in many of the better secondary schools, such a course is entirely practicable; but on the other hand it is useless to attempt the giving of such a course unless the authorities are prepared to supply an equipment which really deserves the name, and will enable the teacher and pupil to do the experiments, and not simply talk about them. I believe that in this second year course the quantitative idea should prevail both in lecture work and in the laboratory. In the discussions and demonstrations a large number of numerical problems, illustrating the application of the formulae to all possible cases should be required of the student. It is remarkable how long students may be familiar with the formula and the principle and still be unable to work out problems from given data. In the laboratory the work should, in practically all cases, be quantitative, and require a higher degree of accuracy than that attained in the first year work. I see no objection to repeating many of the experiments already performed, with better apparatus, and requiring a higher degree of accuracy. In the same way in the discussions and demonstrations, many of the subjects may be reviewed, giving additional details and more accurate application of the principles. In fact, it seems to me that the student may make at least two, and preferably three, journeys through the whole subject, touching on each of the fundamental points, but in each successive journey developing more elaborate detail and more careful and quantitative examination of the principles. For example, whereas the first course may touch but lightly on the phenomenon of the refraction of light with simple experiments and applications, the second time this subject is taken up, it may include a more careful examination, more accurate methods of determination, such details as total reflection, polarization, dispersion, spectrum analysis, correction of lenses, etc., still in a comparatively incomplete way;

and the third time, these subjects would include such things as anomalous dispersion, interference, diffraction, the grating, the phenomena of polarized light, and double refraction. In short, all the experimental material preliminary to mathematical discussions in the subject.

I believe that the proposed syllabus is entirely right in making no preparation for any particular engineering course. It should be considered in a general way and form a general foundation. As to the subject-matter of the syllabus, I have no fault to find with it whatever. In general, the material is well chosen and appropriate to such a course. As above remarked, however, its success will depend on the ability of the teacher and the character of the equipment. I might suggest that I think certain experiments, like more accurate work with the balance, with corrections for the weights, and inequality of the arms, and the buoyant effect of the atmosphere, might well be introduced with advantage; also work on the pendulum, careful determinations of time of vibration by various methods, and the curve for varying lengths. Under heat, Newton's law of cooling, accurately carried out, is instructive on the subjects of radiation and absorption, and determinations of specific heat and latent heat are very desirable, and not very difficult. Under light, I would suggest that the first few subjects on the stereoscope, rainbow, contrast etc., be put in a little bit later after the discussion of lenses and prisms. I think some good determinations of index of refraction and photometry are very desirable. A very good and simple experiment is determining the index of refraction of glass by means of the angle of maximum polarization. Under electricity and magnetism, I think the determination of H and M is a very good experiment, requiring consistent and accurate observation, the use of the ballistic galvanometer, also the efficiency curve of a battery. I think, in this course, the elementary manipulations of soldering, glass-blowing, the manipulation of gold leaf, cocoon fiber, etc., might incidentally be introduced. But I am confidant that the course as outlined, in proper hands, with proper equipment, will result in giving to the student a good quantitative grasp of the subject, which is certainly worth the five periods a week of 40 minutes each which the subject certainly should have.

REPORT OF COMMITTEE ON LABORATORY COURSE IN PHYSIOLOGY

SUGGESTED LIST OF LABORATORY EXERCISES IN PHYSIOLOGY TO BE PERFORMED BY EACH STUDENT

BY C. N. COBB, REGENTS OFFICE, ALBANY, CHAIRMAN

1 Exercise to show mineral matter in bones
2 " animal "
3 Study of different kinds of joints, using parts of a skeleton
4 Tests for acids and alkalis
5 " starch
6 " grape sugar
7 " nitrogenous substances
8 " fats and oils
9 " mineral substances
10 Exercise to show digestion of starch
11 " " nitrogenous substances
12 " " fat
13 " osmosis
14 Circulation of blood in frog's foot, tadpole's tail or gills of necturus seen with compound microscope
15 Microscopic study of human blood corpuscles; also frog blood corpuscles
16 Microscopic study of prepared mounts, as section of lung, bone etc.
17 Exercise to show presence of carbon dioxid in expired breath
18 Study of gross structure of muscle
19 Exercise to show the temperature of the body
20 " blind spot

These are found in most of the textbooks.

SUGGESTED DEMONSTRATIONS IN PHYSIOLOGY AND HYGIENE TO BE PERFORMED BY THE TEACHER

BY C. N. COBB, REGENTS OFFICE, ALBANY

1 Action of the diaphragm and the lungs
2 To show that pepsin and acid are necessary for gastric digestion
3 To illustrate the action of the heart and how it pumps the blood in only one direction
4 Preparation and test of oxygen

5 Demonstration to show how to check the flow of blood from a vein or artery
6 Study of the circulation of air in a schoolroom as related to ventilation
7 Dissection of heart of sheep or beef
8 Dissection of sheep's eye
9 Dissection of sheep's brain
10 Dissection of other organs of animals

Wednesday morning

GENERAL SESSION

A METHOD OF MEASURING THE AMPLITUDE OF VIBRATION IN STATIONARY SOUND WAVES

BY BERGEN DAVIS, COLUMBIA UNIVERSITY, NEW YORK

[Abstract]

The first paper described and exhibited a new effect discovered by the speaker which may be applied to the accurate determination of the amplitude of vibration in stationary sound waves.

This effect is as follows: if a small hollow cylinder, which is closed at one end, be placed in a stationary sound wave, it will be subject to two forces, one of which tends to orient it so that the axis of the cylinder will be perpendicular to the direction of vibration, and another force which tends to drive the cylinder across the wave in the direction of the closed end.

The actual cylinders used for these experiments were the gelatin medicine capsules used by physicians.

A measuring instrument was constructed by mounting two of these cylinders on a paper arm, and suspending the same by a torsion wire in the sound wave. The stationary sound was that produced in a stopped organ pipe. The pipe was blown so as to produce the first overtone. A thin rubber diaphragm was placed across the pipe at the node next the mouth. The interior of the pipe from this node to the closed end, which included just one half wave length, was thus shielded from the disturbances of blowing. The only motion within the pipe was oscillatory motion of the air particles.

The force acting on the cylinders when placed in the sound wave was carefully measured. The force was zero at the nodes, and very great at the middle of the loop. The force varied from the nodes to the loop in such a way that if a curve was plotted having square root of the forces as ordinates, and the distances along the pipe as abscissae, the curve obtained was a true sine curve.

The force acting on the end of the cylinders is proportional to the square of the amplitude of vibration.

The amplitude of vibration may be found by the application of Bernouilli's equation $\frac{dp}{\rho} = -\frac{1}{2} u^2$, where u is the instantaneous velocity, and φ and p are the density and pressure of the vibrating gas respectively.

In one pipe which was used in a series of experiments, the amplitude was found to be 4.3 mm when blown at moderate pressures.

THE ELECTRODELESS DISCHARGE IN HIGH VACUA, AND THE MEAN FREE PATH OF AN ELECTRON

BY BERGEN DAVIS, COLUMBIA UNIVERSITY, NEW YORK

[Abstract]

This paper contained the results of the investigations by the speaker on the theory of the electrodeless discharge. A demonstration was also given showing the electrodeless discharge and also exhibiting the rotation of a miniature anemometer in the discharge.

The discharge was produced by a Leyden jar system. This system was constructed with four jars arranged two in series and two in parallel. The inner coatings were connected to the spark gap, and to the terminals of the secondary of a large induction coil. The outer coatings were connected to a coil composed of a few turns of coarse wire.

When the sparks passed at the spark gap, a brilliant white discharge was produced in a properly exhausted vessel placed in the small coil.

A vessel was shown containing a small glass anemometer. Where the discharge passed in the vessel, the anemometer rotated with a high velocity. This rotation is probably due to the impact of the moving electrons driven by the oscillating electromotive force.

An investigation of the starting potential of the discharge was described. The least potential (volts per cm) necessary to produce the discharge was measured at various pressures. The starting potential was found to decrease with decreasing pressures to a certain pressure, and then rise again to a great value.

The pressure at which the minimum occurred varied with the frequency of oscillation. The potential gradient at pressures below the minimum also depended on the frequency of oscillation of the Leyden jar system.

Curves of the starting potential at various pressures for the two frequencies were shown. From these curves the theory of the discharge was deduced.

This discharge consists of a current of electricity passing in a ring form around the vessel in the gas. This current is really a stream of free electrons moving with a great velocity through the gas. The impact of the electrons with the molecules causes them to emit light. The electrons come from the atoms of the gas. When the discharge ceases the electrons return again to the atoms from whence they came. The number of electrons present is very great, being more than 1,000,000,000 for each cubic centimeter.

The electrons are driven from the atoms by the impact of other electrons. There are a few free electrons always present. Suppose one of these to move through the gas. If it has sufficient energy it will drive another electron out of an atom. These two electrons move forward and produce two others, and so the ionization builds up to a high value.

Let N_0 be the original free electrons present. These build up by impact to N electrons in time T according to the following formula: $N = N_0 e^{xA}$, where N is the number of electrons present in the discharge, $x = \log_e \beta$, where β is the number produced by one impact of one electron. A is the number of successive impacts made by the N_0 electrons in the time T of a half oscillation. The following formula is thus obtained for the discharge at pressure below the minimum: $X = \lambda \left(\frac{2a^2 m}{T^2 e} + V \right)$, where X is the starting potential, λ is the mean free path of an electron, $\frac{e}{m}$ is the ratio of the charge of an electron to its mass, and V is a *constant.*

Experiments were made in air, carbon dioxid and helium. The following results were obtained:

	V	λ/λ^1	A	E
Air				
Co_2				
Helium				

E is the energy in ergs required to take an electron from an atom.

λ/λ^1 is the ratio of the mean free path of an electron to that of a molecule.

The experiments were carried out at the Cavendish Laboratory, Cambridge, England.

REPORT OF COMMITTEE ON ST LOUIS EDUCATIONAL EXHIBIT

BY HUBERT J. SCHMITZ, GENESEO NORMAL SCHOOL, CHAIRMAN

The council which was elected by the different societies of the State of New York to consider the educational exhibit at the St Louis Exposition advised the election of DeLancey M. Ellis as director of education.

Mr Ellis was subsequently appointed director by Mr Rogers, and he retained the original members of the council as an advisory committee. This committee met at different times and outlined the general plan of the educational exhibit which Director Ellis is now carrying out.

There were no funds available from this association and no special notices could be sent out. As the members of this association are nearly all members of some educational institution and all these were specially informed by circular letters from Director Ellis, no special notices were needed.

Mr Ellis desires, however, that this association cooperate with him in the gathering of a complete and interesting exhibit of homemade apparatus and it is hoped that the individual members can help to a great extent in making our exhibit the equal of any which will be found at St Louis.

MEMORIAL TO ROBERT HENRY THURSTON

BY PROF. SIMON HENRY GAGE, CORNELL UNIVERSITY, ITHACA

The science teachers of this State, and indeed of every state and country lost a warm friend and supporter through the death of Robert Henry Thurston, director of Sibley College, Cornell University. Dr Thurston was born Oct. 25, 1839, and died on his birthday in 1903. Death was quick and painless in the midst of full activity. He was spared the pain of failing mental and physical power which comes with slow dissolution.

His early life was passed in Providence R. I. and here he received the liberal education offered by Brown University. He served his country in the engineering corps of the navy during the stirring times of the Civil War. In 1865 he became a teacher in the naval academy at Annapolis. In 1871 he entered on his duties as professor of mechanical engineering at Stevens Institute, and there established the first laboratory of mechanical engineering in America. In 1885 he became director of Sibley College, and continued his work in that position to the day of his death.

His liberal university training, the practical knowledge gained in his father's engine shops, the duties of naval engineer in actual war, all conspired to make him appreciate the needs of his growing country. If it was to become great and powerful, the sciences, resting at the basis of all material progress must, he knew, be cultivated; guesswork must be replaced by mathematics, and rule of thumb give place to the experimental laboratory with its instruments of precision. That such a man would appreciate the science teachers is almost axiomatic. We have a very practical proof of his interest and friendship in the address he gave us at the Rochester meeting in 1900. His own work was mostly in the higher fields, but he realized that the science teachers of the secondary schools were giving the men of the future their initial start. It was always as a colleague, a fellow-teacher that he met us, and gave the hand of friendship and the word of encouragement. This friendship for the science teachers had a very practical bearing also, for his relations with men great in power and in means made it possible for him to impress on them the importance of our work. That our standing in the educational world is growing more and more pleasant and highly esteemed is known to us all, and such men as Dr Thurston have been largely instrumental in bringing this about.

Of his own greatness the work of the Stevens Institute and of Sibley College, and his written books and addresses give abundant evidence. Frequently, however, as one contemplates the splendid achievements of a life something of regret mingles with one's thought. Fortunately no regret can come when his life is reviewed. He had great opportunities and he used them greatly, and for the benefit of his fellow-men. Here is a part of the tribute from his colleagues of the Cornell University faculty:

> In all his relations to general university problems he exhibited the spirit of the scholar and the wisdom of a man of affairs. Serene in temper, sound in judgment, swift and certain in action, he justly exercised a weighty influence in all our counsels.
>
> As a friend and companion he manifested a cordial sympathy that attracted all who knew him and held them in the bonds of an increasing affection.
>
> In all the relations of life he moved upon the higher levels and showed forth the better qualities of our nature.

But after all nothing is so pleasant to remember of a dead friend as his own best words, for they represent his ideals and aspirations. In one of his addresses he thus characterizes a scientific man: " He is distinguished by a love of nature and all her works, a love of learning for its own sake, a love of scientific methods and scientific work in research as intrinsically attractive, as well as a means to an end. He is characterized, in the ideal type at least, by an absolute conscientiousness, infinite courage and invincible persistence, perfect faith in the complete accordance of all truth."

MEMBERS 1903

When the name of an institution includes the name of its town or city, the latter is not repeated. Where no state abbreviation is given, New York is to be understood.

Almy, Maud E., 16 Miegs st. Rochester, Cruttenden School
Alverson, B. W., Dexter
Arey, Albert L., Girls High School, Brooklyn
Arnold, J. L., DeWitt Clinton High School, New York
Atkinson, George F., Cornell University, dep't of botany, Ithaca
Atwater, J. C., Canandaigua Academy

Babcock, Edward S., Alfred University
Baker, A. M., Irondequoit
Barber, H. G., 241 W. 135th st. New York, DeWitt Clinton High School
Bardwell, D. L., Superintendent of schools, borough of Richmond
Barker, V. K., Turin Union School
Barrows, Franklin W., M.D., 45 Park st. Buffalo, Central High School
Barrus, R. M., Keuka College
Beach, Channing E., 49 Day's park, Buffalo, School 23
Beach, Grace B., 322 St Nicholas av. New York, Normal College of the City of New York
Bean, Charles M., Pulaski High School
Benedict, W. H., Brooklyn
Bennett, William M., 76 Wellington av. Rochester, High School
Bentley, G. W., Belleville
Bickmore, Mary E., 30 W. 128th st. New York, Mount Vernon High School
Bigelow, Maurice A., Teachers College, New York
Binns, Charles F., New York State School of Clay-working and Ceramics, Alfred
Bishop, Irving P., 344 West av. Buffalo, Normal School
Bliss, Carrie H., Wolcott High School
Bogert, Marston T., Columbia University, New York
Bond, William E., Potsdam Normal School
Boniface, Sister M., Nazareth Academy, Rochester
Bradley, Elizabeth L., Geneseo Normal School
Bradley, Theodore J., Albany College of Pharmacy
Brigham, A. P., Colgate University, Hamilton
Bronson, B. S., Geneseo Normal School
Brown, Marim R., 56 Livingston st. Brooklyn, Erasmus Hall High School
Brown, Mrs M. McC., 427 Penn st. Camden, High School
Bryant, Ward C., Le Roy
Burchell, Durward E., Oswego Normal School
Burgin, Bryan O., Albany High School
Burlingham, Gertrude S., 93 Oak st. Binghamton, High School
Burr, Charles H., White Plains High School
Caldwell, L. Jay, East Orange N. J.
Call, Richard E., Erasmus Hall High School, Brooklyn
Callahan, E. B., Richfield Springs High School
Campbell, D. R., Rome High School
Carey, E. L., St John's College, Brooklyn
Carney, Frank, 413 E. State st. Ithaca, High School
Carpenter, Idalette, Maplewood N. J., Girls High School
Case, L. V., Washington Irving High School, Tarrytown
Cate, Eleazor, 16 Ashburton place, Boston Mass.
Cattell, J. McKeen, Garrison
Chesebrough, Thomas U., 48 Livingston av. Yonkers, High School
Chester, W. M., Colgate University, Hamilton
Chollar, Sarah V., 91 Main st. Potsdam, Normal School
Clark, John A., Ithaca High School
Clark, O. D., Brooklyn Boys High School
Clarke, John M., State paleontologist, Albany
Clement, Arthur G., Regents Office, Albany

Clendenin, W. D., 53 W. 104th st. New York, Wadleigh High School
Cobb, Charles N., Regents Office, Albany
Colby, E. C., Rochester Atheneum and Mechanics Institute
Comstock, J. H., 43 East av. Ithaca, Cornell University
Congdon, E. D., Malone Academy
Cooley, LeRoy C., Vassar College, Poughkeepsie
Cornish, R. H., 232 Claremont av. Montclair N. J.
Crawford, A. Myrtella, Buffalo Central High School
Crissey, Jay, Superintendent of schools, Penn Yan
Curtiss, Harriette A., Sodus
Dann, Mary E., 413 Clinton st. Brooklyn, Girls High School
Dean, Phillip R., 60 W. 13th st. New York, DeWitt Clinton High School
Decker, Floyd F., Waterport, Newark Valley High School
Denham, Henry H., 146 N. Pearl st. Buffalo, Central High School
Dodge, Charles W., 330 Oxford st. Rochester, University
Dodge, Richard E., Teachers College, New York
Doremus, C. A., 59 W. 57th st. New York, College of the City of New York
Elliott, Arthur H., 4 Irving place, New York
Emerson, Josephine, Pratt Institute, Brooklyn
Evans, Susan, 205 Court st. Rome, Catskill High School
Farnham, Amos W., 141 W. 4th st. Oswego, Normal School
Fairbanks, Floyd C., Geneva High School
Freley, J. W., Wells College, Aurora
Fuller, R. W., DeWitt Clinton High School, New York
Gage, O. A., University of Rochester
Gage, Simon H., Cornell University, Ithaca
Gager, C. Stuart, State Normal College, Albany
Gardner, George S., 141 Clifton st. Rochester
Gary, Lester F., Central High School, Buffalo
Glavin, John F., St John's Academy, Rensselaer
Gorton, J. Irving, 22 Dale av. Sing Sing, Sup't of schools
Graham, W., Syracuse University
Grandjean, C. M., Cape Vincent
Greene, W. J., South Glens Falls High School
Greenwood, John N., 417 W. 117th st. New York, Columbia University
Grout, A. J., Brooklyn Boys High School
Hale, Albert C., 352A Hancock st. Brooklyn, Boys High School
Hall, J. H., Cazenovia Seminary
Hallock, William, Columbia University, New York
Hancock, W. J., Erasmus Hall High School, Brooklyn
Hanna, Jennie P., 731 Main st. E. Rochester, High School
Hargitt, Charles W., Syracuse University
Harris, C. Everett, 1114 E. Main st. Rochester, High School
Hartnagel, C. A., Newark
Henshaw, Hoyt, Stockton
Hering, D. W., New York University
Herrick, Lillian B., 408 Union place, Elmira, Free Academy
Hersey, C. Brooks, Masten Park High School, Buffalo
Hill, R. V., Jamestown
Hixon, Kate B., 24 E. 128th st. New York
Holdredge, F. L., Hudson High School

Holly, Harold A., Warsaw High School
Hopkins, T. C., Syracuse University
Hudson, George H., Plattsburg Normal School
Humphrey, O. D., Jamaica (L. I.) Normal School
Hunt, Arthur E., Brooklyn Manual Training High School
Hurd, Frances, Oneonta Normal School
Jameson, J. M., Pratt Institute, Brooklyn
Jewett, Franklin N., Fredonia Normal School
Karpenski, L. C., Oswego Normal School
Karr, Grant, Oswego Normal School
Kauffman, W. L., Yonkers High School
Keller, Christopher, Luzerne High School
Kelly, Henry A., 109 W. 54th st. New York, Ethical Culture School
Kemp, James F., Columbia University, New York
Kenyon, O. C., 110 Lancaster av. Syracuse, High School
Kingsley, J. Stanton, Newark Valley High School
Kirkwood, J. E., Syracuse University
Kittredge, R. J., Erie Pa.
Kneil, Thomas R., Sup't of schools, Saratoga Springs
Kraus, E. H., 907 E. Adams st. Syracuse, High school
Lamson, F. L., Montour Falls
Langworthy, William F., Colgate Academy, Hamilton
Lee, Frederic S., 437 W. 59th st. New York, Columbia University
Lennon, Alice L., Brockport Normal School
Lennon, W. H., Brockport Normal School
Lewis, Burr, Westfield
Lewis, Fred Z., Brooklyn Boys High School
Linville, Henry R., 311 W. 94th st. New York, DeWitt Clinton High School
Lloyd, Francis E., Teachers College, New York
Loeb, Morris, New York University
Logan, Mrs Mary C., Lyons High School
Longwell, Elizabeth J., Penn Yan
Lovell, Thomas B., Niagara Falls High School
Lyon, Howard, Oneonta Normal School
McGreevy, Thomas, 200 Albany st. Buffalo, High Street School 39
McKay, John S., 460 Greene av. Brooklyn, Packer Collegiate Institute
McMurry, Frank M., Teachers College, New York
Mann, Warren, Potsdam Normal School
Mar, Frederick W., Brooklyn Boys High School
Marcella, Sister M., Nazareth Academy, Rochester
Maury, Mytton, 37 E. 21st st. New York
Merrell, William D., University of Rochester
Merrill, F. J. H., New York State Museum, Albany
Merritt, E. G., Lafayette High School, Buffalo
Meserve, Elizabeth E., Utica High School
Metzler, W. H., Syracuse University
Miller, Gertrude, Penn Yan Academy
Miller, Mrs Mary Rogers, Cornell University, bureau of nature study, Ithaca
Milliman, Lennette G., 100 Kenwood av. Rochester, High School
Minor, Ralph S., Deposit, 550 E. Monroe st. Little Falls, High School

Moore, Katherine Row, 24 E. Ellen st. Greenwich Ct.
Moore, S. G., Dannemora
Morrey, William T., 58 W. 104th st. New York, Morris High School
Morrill, A. D., Hamilton College, Clinton
Morris, Dora M.
Morse, Charles F. M.D., DeWitt Clinton High School, New York
Morse, H. L. F., Troy High School
Multer, W. J., Bayshore (L. I.) High School
Nichols, Edward L., Cornell University, Ithaca
O'Neil, Everett, Regents Office, Albany
Osborn, Henry F., Columbia University, New York
Overton, Frank, Patchogue
Paddock, Bertha L., 114 Webster st. Malone, Franklin Academy
Palmer, Lelia B., Cassville
Park, Joseph C., Oswego Normal School
Parker, Evans S., 144 E. Erie st. Chicago Ill.
Pattee, Ernest M., Syracuse University
Peabody, James E., 138 W. 137th st. New York, Morris High School
Peck, Henry A., 307 Waverly place, Syracuse, University
Peckham, W. C., Adelphi College, Brooklyn
Pierce, Elizabeth A., Fairport
Piez, Richard K., Oswego Normal School
Pingrey, Mrs Cora E., Morris High School, New York
Piper, P. F., Buffalo Central High School
Platzer, William H., Le Raysville (Pa.) High School
Pollock, Horatio M., State Civil Service Commission, Albany
Pratt, H. Irving, Orwell
Proper, Emberson E., Brooklyn Boys High School
Randall, Charles W., Lockport High School
Raneson, Edward B., 226 E. 16th st. New York, Friend's Seminary
Reed, Raymond C., 105 Valentine place, Ithaca, New York State Veterinary College
Richards, C. W., Oswego High School
Richards, Charles R., Teachers College, New York
Richardson, Roy S., 333 Halsey st. Brooklyn, Boys High School
Robertson, C. B., Cortland Normal School
Robinson, Emma C., 419 S. 1st av. Mt Vernon
Roe, E. D., Syracuse University
Rogers, F. J., Cornell University, Ithaca
Rollins, Frank, 356 W. 145th st. New York
St John, Thomas M., 352 W. 56th st. New York, Browning School
Sampson, Ezra W., Mott av. & 144th st. New York, Morris High School
Schmitz, H. J., Geneseo Normal School
Schneider, Philip F., 319 Jackson st. Syracuse, High School
Schuyler, Erwin H., Erie (Pa.) High School
Scott, Charles B., Oswego Normal School
Scott, Irving D., 215 Erie st. Syracuse, High School
Scribner, E. E., Dunkirk High School
Seymour, A. T., 3080 3d av. New York
Shatz, Josephine, Rochester High School
Shear, S. R., Kingston

Shearer, John S., Cornell University, Ithaca
Sheldon, C. S., Oswego Normal School
Sherwood, Leora E., 1514 S. State st. Syracuse, High School
Sieberg, W. H. J., Hotel Winthrop, 7th av. & 125th st. New York, School 43
Sleeper, Joseph J., Room 810, Provident Bldg., 4th & Chestnut st. Philadelphia, Pa.
Smallwood, W. M., Syracuse University
Smith, Oren R., Amsterdam High School
Smith, H. Monmouth, 701 University av. Syracuse, University
Stannard, J. Ellis, Oswego
Steurwald, Fred, Newark, Glens Falls High School
Stocker, John H., 124 Hancock st. Brooklyn, Boys High School
Stoel, T. B., Sacketts Harbor
Stoller, James H., Union College, Schenectady
Stone, Anna J., Binghamton School 13
Stowell, T. B., Potsdam Normal School
Tappan, Frances, Oneonta Normal School
Tarr, Ralph S., Cornell University, geological dep't, Ithaca
Taylor, Joseph S., 2275 Aqueduct av., University Heights, New York, Editor *Teachers Magazine*
Taylor, R. A., Niagara Falls Dep't of Education
Tenney, Lloyd S., University of Rochester
Thomas, M. Smith, Central High School, Buffalo
Trant, Amelia E., Masten Park High School, Buffalo
Turner, George M., Masten Park High School, Buffalo
Underwood, L. M., Columbia University, New York
Van Arsdale, May B., Teachers College, New York
von Nardroff, E. R., Erasmus Hall High School, Brooklyn
Ward, Charles H., 47 Mt Hope av. Rochester
Ward, Delancy W., 215 W. 42d st. New York
Warner, A. R., 36 Franklin st. Auburn
Watkins, Albert H., Richfield Springs High School
Weed, Henry T., 76 Court st. Brooklyn, Manual Training High School
Wetmore, Edward W., State Normal College, Albany
Wetmore, Katherine S., 84 S. Fitzhugh st. Rochester, High School
Wheelock, Charles F., Regents Office, Albany
Whitney, E. R., Binghamton High School
Wilber, T. C., Waterloo High School
Wilcox, C. C., Starkey Seminary, Eddytown
Wilder, Burt G., Cornell University, dep't of neurology, Ithaca
Williams, C. B., Chicago Laboratory Supply Co., Chicago Ill.
Williston, Arthur L., Pratt Institute, Brooklyn
Wilson, John D., Putnam School, Syracuse
Wilson, Victor T., Cornell University, Ithaca
Winchester, W. M.
Wixom, F. C., Penn Yan Academy
Wolcott, H. G., Clifton Springs
Woodhull, John F., Teachers College, New York
Wyckoff, Adelaide E., 58 Hanson place, Brooklyn, Packer Collegiate Institute

INDEX

Abel, John J., cited, 621, 627, 628, 630, 631-32, 653.

Action, summary of, 486-89.

Alcohol and narcotics, report of progress of committee, 486-87; delegates to confer with committee on, 487; final report of committee, 613-50; report of the physiologic subcommittee of committee of fifty, 615-19; is alcohol a food or a poison, 620-23; effect of alcohol on organs and functions of the body, 623-36; conclusions, 636-38; physiologic effects of tobacco, 638-43; teachers and the New York State law, 643-45; the Connecticut law, 645-49; modifications of preliminary report of *1901*, 649-50.

Anstie, F. E., cited, 617, 623, 637.

Art, correlation of biologic science with drawing and English in the high school, by C. S. Gager, with discussion, 517-30.

Attendants, register, 691-96.

Atwater, W. O., cited, 629, 630, 650.

Auditing committee, report, 488.

Binz, cited, 630.

Biology, correlation with drawing and English in the high school, by C. S. Gager, with discussion, 517-30; correlation with sanitary science, by J. H. Stoller, with discussion, 531-44; advantages of a year's course in, by W. D. Merrell, with discussion, 564-75.

Biology as a culture study, by W. M. Smallwood, with discussion, 575-86.

Bishop, Irving P., address, 489-90.

Botany, *see* Biology.

Bowditch, H. P., cited, 618, 654.

Brigham, Albert Perry, on nomenclature of New York geologic formations, 506-8; Laboratory Work in Physical Geography, 550-51.

Browning, cited, 523.

Brunton, T. Lauder, cited, 633, 634.

Bunge, cited, 630.

Burlingham, Gertrude S., on biology as a culture study, 583-86.

Carlyle, quoted, 588.

Chemistry, desirable changes in the Regents courses, by G. M. Turner, 607-13.

Chemistry in the high school, by E. G. Merritt, 602-6.

Chittenden, R. H., cited, 623, 624, 625.

Clark, J. Scott, cited, 524, 526, 527.

Clarke, John M., Nomenclature of the New York Geologic Formations, 495-506.

Clouston, Dr. cited, 633.

Cobb, C. N., Suggested List of Laboratory Exercises in Physiology, 685-86.

Coburn, Frederick W., cited, 518, 519.

Color phenomena, new apparatus for illustrating, by E. R. von Nardroff, 557-60.

Commercial geography, place of, by J. W. Redway, 551-54.

Committee reports, 488-89.

Comstock, Mrs Anna Botsford, Preparation of Teacher for Nature Study Teaching, 491-95.

Corson, cited, 523.

Curtiss, Harriette Arms, on correlation of biology with English and drawing, 529-30.

Dana, C. L., cited, 637.
Davis, Bergen, Method of Measuring the Amplitude of Vibrations in Stationary Sound Waves, 686-87; Electrodeless Discharge in High Vacua and the Mean Free Path of an Electron, 687-89.
Decerebrized frog, exhibition of, by B. G. Wilder, 586-87.
Diaphragm apparatus, 666.
Drawing, correlation of biologic science with, in the high school, by C. S. Gager, with discussion, 517-30.

Earth science, 544-54.
Electrodeless discharge in high vacua, and the mean free path of an electron, by Bergen Davis, 687-89.
Eliot, President, quoted, 575-76.
Ellis, Richard, cited, 640.
English, correlation of biologic science with, in the high school, by C. S. Gager, with discussion, 517-30.

Farnham, cited, 545.
Fick, A., cited, 653.
Fisher, William L., on year's continuous course in biology, 571-75.
Formad, cited, 626.
Fothergill, cited, 649.
Frog, decerebrized, exhibition of, by B. G. Wilder, 586-87.

Gage, Simon Henry, Memorial to Robert Henry Thurston, 690-91.
Gager, C. Stuart, Correlation of Biologic Science with Drawing and English in the High School 517-28.
Geography, textbooks in, by M. K. Smith, 587-601. *See also* Home geography; Physical geography.
Geology, nomenclature of the New York geologic formations, by J. M. Clarke, with discussion, 495-509.
Gould, cited, 627.
Graham, Mrs Cora Dodson, on effects of alcohol, 650-58.

Hallock, William, on syllabus in physics, 682-84.
Hare, H. A., cited, 639.
Hewes, H. F., cited, 622, 623, 625, 631.
Hitchcock, E., cited, 641.
Hodge, C. F., cited, 618, 654.
Home geography, by H. I. Pratt, 544-49.
Hudson, George H., on spread of tuberculosis, 543-44; Zoology in the High School, 658-65.
Hutchinson, Robert, cited, 625.
Hygiene, *see* Sanitary science.

Jackson, James, cited, 637.

Kenyon, O. C., Physics, Laboratory and Machine Shop Exhibit, 555-57; on syllabus in physics, 679-82.
Kerr, Norman, cited, 640.
Kirkwood, J. E., on biologic sciences, 530; on course in general biology, 575.
Krauss, William C., cited, 633.

Laboratory and machine shop exhibit, by O. C. Kenyon, 555-57.
Laboratory course in physiology, action on report of committee, 487.
Laboratory exercises in physiology, suggested list, by C. N. Cobb, 685-86.
Laboratory experiments in physics, 672-79.
Laboratory work, in chemistry, 604-6; desirable changes in the Regents courses in chemistry and physics, by G. M. Turner, 607.
Laboratory work in physical geography, by A. P. Brigham, 550-51.
La Laume, C., cited, 634.
Lee, cited, 629.
Levene, P. A., cited, 657.
Levy, Magnus, cited, 626.
Lombard, W. P., cited, 642.
Lubbock, quoted, 583.
Lyon, Howard, Fundamental Things in Physical Science, 509-17.

McClintock, Emory, cited, 635.
Machine shop exhibit, by O. C. Kenyon, 555-57.
Mathematics, section organized, 489.
Merrell, William Dayton, Advantages of a Year's Course in Biology, 564-71.
Merritt, E. G., Chemistry in the High School, 602-6.

Narcotics, *see* Alcohol and narcotics.
Nature study teaching, preparation of teacher, by Mrs A. B. Comstock, 491-95.
Nomenclature of the New York geologic formations, paper by J. M. Clarke, with discussion, 495-509.
Nominations, 489.

Officers elected, 489.
Osler, cited, 626.

Peckham, William C., Demonstration of Radium, 561-64.
Physical geography, laboratory work, by A. P. Brigham, 550-51.
Physical science, fundamental things in, by Howard Lyon, 509-17.
Physics, desirable changes in the Regents courses, by G. M. Turner, 607-13; second year, report of committee appointed to prepare a syllabus for, by E. R. von Nardroff, with discussion, 666-84; action on, 487.
Physics, laboratory and machine shop exhibit, by O. C. Kenyon, 555-57.
Physiology, suggested list of laboratory exercises, by C. N. Cobb, 685-86; action on report of committee, 487. *See also* Biology.
Piper, P. F., on nomenclature of New York geologic formations, 508-9.
Pratt, H. Irving, Home Geography, its Place and Purpose in Geography Teaching, 544-49.
Public health, granting diploma of doctor in, 541-43.

Radium, demonstration of, by W. C. Peckham, 561-64.
Redway, Jacques W., Place of Commercial Geography, 551-54.
Regents courses in chemistry and physics, desirable changes in, by G. M. Turner, 607-13.
Register of attendants, 691-96.
Ritter, cited, 545, 548.
Ruskin, cited, 521.
Rutherford, James M., cited, 633.

St Louis Exposition, educational exhibit, report of committee on, 689; action on report, 488.
Salant, cited, 629.
Sanitary science, correlation of biology with, by J. H. Stoller, with discussion, 531-44; as a subject of instruction, 540-41.
Schmiedeberg, cited, 630.
Schmitz, Hubert J., Report of Committee on St Louis Educational Exhibit, 689.
Seaver, Jay W., cited, 639, 641.
Secretary and treasurer, appointment, 489.
Sedgwick, cited, 531.
Sessions, summary of, 483-86.
Smallwood, W. M., Biology as a Culture Study, 575-83; on zoology in the high school, 665.
Smith, Frederick W., on correlation of biology with sanitary science, 540-43.
Smith, Margaret Keiver, Textbooks in Geography, 587-601.
Sollman, T., cited, 639.
Sound waves, stationary, method of measuring the amplitude of vibrations in, by Bergen Davis, 686-87.
Steele, J. Dorman, cited, 619.
Stoller, James H., Correlation of Biology with Sanitary Science, 531-40.

Teacher, preparation for nature study teaching, by Mrs A. B. Comstock, 491-95.
Tennyson, cited, 660.
Thurston, Robert Henry, memorial, 690-91.
Tobacco, physiologic effects of, 638-43.
Treasurer's report, 488.
Turner, G. M., Desirable Changes in the Regents Courses in Chemistry and Physics, 607-13.

Van Dyke, John C., cited, 521-22.
von Nardroff Ernest R., New Apparatus for Illustrating Color Phenomena, 557-60; Report of Committee Appointed to Prepare a Syllabus for Second Year Physics, 666-79.
von Voit, C., cited, 652.

Warman, P. C., cited, 525.
Welch, cited, 626.
White, Andrew D., cited, 642.
Wilder, Burt G., Exhibition of a Decerebrized Frog, 586-87; final report of committee on alcohol and narcotics presented by, 613-19; diaphragm apparatus presented by, 666.
Wordsworth, William, quoted, 581.

Zoology in the high school, by G. H. Hudson, with discussion, 658-65. *See also* Biology.
Zuntz, cited, 626.

High School Department

PUBLICATIONS

Gaps in the series indicate that the numbers omitted are replaced by later editions or are for other reasons out of print.

Examination Department reports 1894–97. O. *75c a vol. cloth.*

Till 1894 these reports formed part of the general University reports, known as the Regents reports. They cover courses of study in secondary schools, examination of professional students, licensing examinations for physicians, dentists, veterinary surgeons and certified public accountants.

Continued in 1898 as reports of College and High School Departments.

Examination Department bulletins 1895–98. O. *Continued as College and High School Department bulletins.*

B4 (Examinations 1) Regents Examinations. 82p. Nov. 1890. *10c.*

Historical sketch, laws, ordinances and rules pertaining to all examinations conducted by the Regents; details as to all University credentials; subjects, times and places of examinations 1891–95; notes on the reorganization of 189

B23 (Examinations 5) Report of Examination Department 1893. 82p. Feb. 1894. *10c.*

X6 Report of Examination Department 1894. 126p. Mar. 1895 *15c.*

X7 Medical Syllabus. 128p. Mar. 1895. *25c.*

Outline of ground covered by state licensing examinations, prepared under direction of state boards of medical examiners for guidance of candidates.

Syllabus of Form Study and Drawing. 30p. 32pl. *25c.*

Reprint of p.431–34d and plates from X8, *Academic Syllabus 1895*, replaced by X24.

X9 Report of Examination Department 1895. 108p. Feb. 1896. *15c.*

X10 Examination Papers 1896. 502p. Oct. 1896. *50c; small size uniform with previous volumes 25c, boards 50c.*

See also Question papers.

X11 Davis, W: M. (Harvard) State Map of New York as an A to the Study of Geography. 28p. Nov. 1896. *5c.*

Based on the topographic map in preparation by the United States Geological Survey.

X12 Report of Examination Department 1896. 114p. Jan. 1897. *15c.*

X13 College-entrance English. 148p. June 1897. *15c.*

Present English entrance requirements of representative colleges and universities. Also discussions on aims and methods in teaching secondary school English.

X14 Examination Papers 1897. 578p. Aug. 1897. *Price, see* X1

X15 Report of Examination Department 1897. 120p. Nov. 1897. *15c.*

X16 Examination Papers 1898. 512p. Sep. 1898. *Price, see* X10.

The second edition contains only the academic papers, the professional papers being printed separately as College bulletin 3.

High School Department reports 1898–date. O. *75c a vol. cloth.*

High School Department bulletins 1898–date. *To advance subscribers 50c a year.*

X17 (High School 1) Director's Report 1898. 122p. Mar. 1899. *15c.*

X19 (High School 3) Associated Academic Principals. Proceedings of the 14th Annual Conference, Dec. 1898. 236p. Dec. 1899. *25c.*

X20 (High School 4) Academic Examination Papers 1899. Oct. 1899. *25c. Small size 12.5 x 20 cm, 25c; boards*

X21 (High School 5) Director's Report 18

2 (High School 6) Associated Academic Principals. Proceedings of the 15th Annual Conference, Dec. 1899. 188p. Mar. 1900.

3 (High School 7) State Science Teachers Association. Proceedings of the Fourth Annual Conference, Dec. 1899. 302p. May 1900

4 (High School 8) Academic Syllabus. 226p. Ap. 1900 *cloth, 50c.*

e University declines to recommend any special textbooks, but for the ance of teachers and students it specifies the ground covered by the pr nary and academic subjects. This syllabus is the best available outline o should be accomplished in these subjects.

5 (High School 9) Manual Training Syllabus. 60p. May 1900. *10c.*

6 (High School 10) Academic Examination Papers 1900. 306p. Aug. 1900. *Price, see* X20.

7 (High School 11) Director's Report 1900. 38p. Feb. 1901.

8 (High School 12) Associated Academic Principals. Proceedings of the 16th Annual Conference, Dec. 1900. 163p. Ap. 1901 *25c.*

9 (High School 13) State Science Teachers Association. Proceedings of the Fifth Annual Conference, Dec. 1900. 250p. May 1901. *35c.*

0 (High School 14) Academic Examination Papers 1901. 328p. Aug. 1901. *25c; boards, 50c.*

1 (High School 15) Director's Report 1901. 34p. Jan. 1902. *10c.*

2 (High School 16) Associated Academic Principals. Proceedings of the 17th Annual Conference, Dec. 1901. 196p. Mar. 1902. *25c.*

3 (High School 17) State Science Teachers Association. Proceedings of the Sixth Annual Conference, Dec. 1901. 312p. Oct 1902. *40c.*

4 (High School 18) Academic Examination Papers 1902. 316p. July 1902. *25c; boards, 50c.*

5 (High School 19) Associated Academic Principals. Proceedings of the 18th Annual Conference, Dec. 1902. 136p. June 1903. *20c.*

6 (High School 20) Director's Report 1902. 38p. July 1903. *10c.*

7 (High School 21) State Science Teachers Association. Proceedings of the Seventh Annual Conference, Dec. 1902. 128p. Nov. 1903. *20c.*

8 (High School 22) Academic Examination Papers 1903. 308p. July 1903. *25c*

9 (High School 23) Director's Report 1903. 52p. 1904.

0 (High School 24) Associated Academic Principals. Proceedings of the 19th Annual Conference, Dec. 1903. 172p. 1904. *25c.*

1 (High School 25) State Science Teachers Association. Proceedings of the Eighth Annual Conference, Dec. 1903. 222p. Dec 1904. *30c.*

2 (High School 26) Academic Examination Papers 1904. 324p. 1904. *25c.*

estion papers. For the academic year 1893 (v. 1); 1893 (v. 2); 1894 (v. 3); 1895 (v. 4). D. *25c; boards, 50c.*

1896–1904 see X10, X14, X16, X20, X26, X30, X32, X38, X42. Till 18 [illegible] contained all the Regents question papers of that year in any [illegible] professional law, medical, dental, veterinary, library and [illegible] of the 1896 examination [illegible]

585378

Published monthly by the
University of the State of New York
1904

gh School Department

ACADEMIES AND ALL INTERESTS OF SECONDARY EDUCATION

Bulletin 26

U. N. Y. High School Dept

CADEMIC EXAMINATION PAPERS

FOR THE

Academic year 1904

PAGE
4
nguage and literature 5
nguages 77
ics 191
PAGE
Science 212
History and social sciences 242
Other studies 276

ALBANY
NEW YORK STATE EDUCATION DEPARTMENT
1904

Price 25 cents

STATE OF NEW YORK

EDUCATION DEPARTMENT

Regents of the University

With years when terms expire

1913 Whitelaw Reid M.A. LL.D. *Chancellor* - - N
1906 St Clair McKelway M.A. L.H.D. LL.D. D.C.L.
Vice Chancellor - - - - - - - - - B
1908 Daniel Beach Ph.D. LL.D. - - - - - - W
1914 Pliny T. Sexton LL.D. - - - - - - - P
1912 T. Guilford Smith M.A. C.E. LL.D. - - - B
1905 Albert Vander Veer M.A. Ph.D. LL.D. M.D. - A
1907 William Nottingham M.A. Ph.D. LL.D. - - S
1910 Charles A. Gardiner Ph.D. L.H.D. LL.D. D.C.L. N
1915 Charles S. Francis B.S. - - - - - - - T
1911 Edward Lauterbach M.A. - - - - - - - N
1909 Eugene A. Philbin LL.B. LL.D. - - - - N

Commissioner of Education

Andrew S. Draper LL.D.

Assistant Commissioners

Howard J. Rogers M.A. LL.D. *First Assistant Commiss*
Edward J. Goodwin Lit.D. *Second Assistant Commissio*
Augustus S. Downing M.A. *Third Assistant Commissio*

Secretary to the Commissioner

Harlan H. Horner B.A.

Director of Libraries and Home Education

Melvil Dewey LL.D.

Director of Science Work and State Museum

John M. Clarke LL.D.

Chiefs of Divisions

Accounts, William Mason
Attendance, James D. Sullivan
Examinations, Charles F. Wheelock B.S.
Inspections, Frank H. Wood M.A.
Law, Edwin M. Holbrook
Records, Charles E. Fitch L.H.D.
Statistics, Hiram C. Case

[illegible]

Published monthly by the
University of the State of New York
[illegible] 1904

High School Department

LUDING ACADEMIES AND ALL INTERESTS OF SECONDARY EDUCATION

Bulletin 26

ACADEMIC EXAMINATION PAPERS

FOR THE

Academic year 1904

PAGE
ice........................ 4
ish language and literature.. 5
ign languages............. 77
ematics 191

PAGE
Science 212
History and social sciences...... 242
Other studies................... 276

CONTENTS

PAGE

English language and literature

Spelling 5
English, elementary 11
" advanced 17
" 1st year 25
" 2d " 29
" 3d " 33
" composition 37
Advanced English composition .. 45
Rhetoric 49
History of literature 57
English reading 61
" selections 65
American selections 71

Foreign languages

French, 1st year 77
" 2d " 81
" 3d " 85
German, 1st year 89
" 2d " 97
" 3d " 103
Spanish, 1st year 107
" 2d " 111
" 3d " 115
Greek, 1st year 119
Xenophon's Anabasis 123
Homer's Iliad 129
Greek, 2d year 133
" 3d " 137
" prose composition 141
Latin, 1st year 143
Caesar's Commentaries 151
Sallust's Catiline 161
Cicero's Orations 165
Virgil's Aeneid 171
" Eclogues 177
Latin, 2d year 181
" 3d " 185
" prose composition 189

PAGE

Mathematics

Arithmetic 191
" advanced 196
Algebra 198
" advanced 202
Plane geometry 204
Solid " 208
Trigonometry 210

Science

Astronomy 212
Physics 214
Chemistry 222
Geology 226
Physical geography 228
Botany 233
Zoology 236
Physiology and hygiene 238

History and social sciences

Geography 242
Greek history 245
Roman " 247
Medieval history 250
English " 252
Elementary United States history and civics 257
Advanced United States history. 261
Civics 267
Economics 272

Other studies

Psychology 276
Ethics 278
Stenography 279
Bookkeeping 290
Drawing 307
Advanced drawing 317
Word analysis 321

PREFACE

Academic examinations. These tests are purely voluntary. The last vestige of compulsion regarding them disappeared when they ceased to be used as a means for the distribution of public funds. They are based on the *Academic Syllabus*, which is revised every five years with the assistance of specialists and with suggestions from principals and teachers. All question papers are prepared by specialists and are passed on by a question board of inspectors who are men of wide experience in teaching and are, through frequent visits, in direct contact with the schools. With each set of question papers sent to the schools is inclosed a blank for criticisms by principals and teachers. By this means each question paper is reviewed by hundreds of teachers and the detailed criticism received is heeded in the preparation of later question papers.

Answer papers are rated first by the principals of the schools and those claimed are then sent to the Department for review. In 1903, 539,241 answer papers were written, of which number 358,015 or 66% were allowed. 60,215 papers, all of which except those of professional students had been rated by principals and teachers as entitled to 75%, were rejected on review. Since 1899 the per cent of claimed answer papers allowed by the University on review has not fallen below 86 nor been greater than 92. All question papers are printed at the office of the Department, are sent to the schools in steel boxes by express, and are most carefully guarded in every way.

High School Department

180TH EXAMINATION

SPELLING

Friday, January 29, 1904 — 1.15 to 2.15 p. m., only

The following numbered words are to be written by each candidate. The examiner should distinctly and properly pronounce each word (with the number prefixed), allowing sufficient time for writing it before the next word is pronounced. Papers entitled to 75 or more credits will be accepted.

The schoolmaster's (1) occupation is (2) laborious and (3) ungrateful; its (4) rewards are (5) scanty and (6) precarious. He may (7) indeed be, and he (8) ought to be, (9) animated by the (10) consciousness of (11) doing good, that best of all (12) consolations, that (13) noblest of all (14) motives. But that too must be (15) often (16) clouded by (17) doubt and (18) uncertainty. (19) Obscure and (20) inglorious as his (21) daily occupation may (22) appear to (23) learned (24) pride or (25) worldly (26) ambition, yet to be (27) truly (28) successful and (29) happy he must be animated by the (30) spirit of the same great (31) principles (32) which (33) inspired the most (34) illustrious (35) benefactors of (36) mankind. If he bring to his task high (37) talent and rich (38) acquirement, he must be (39) content to look into (40) distant (41) years for the (42) proof that his labors have not been (43) wasted . . . He must (44) solace his toils with the same (45) prophetic (46) faith that (47) enabled the (48) greatest of (49) modern (50) philosophers, (51) amidst the (52) neglect or (53) contempt of his own times, to (54) regard (55) himself as (56) sowing the seeds of truth for (57) posterity and the care of (58) heaven. He must arm himself (59) against (60) disappointment and (61) mortification with a (62) portion of that same noble (63) confidence which (64) soothed the greatest of modern poets when (65) weighed down by care and (66) danger, by (67) poverty, old age, and (68) blindness.

If such are the (69) difficulties and the (70) discouragements, such the (71) duties, the motives, and the consolations of (72) teachers who are (73) worthy of that name and (74) trust, how (75) imperious then the (76) obligation upon (77) every (78) enlightened (79) citizen who knows and feels the (80) value of such men, to aid them and to (81) honor them. But let us not be content with (82) barren honor to (83) buried (84) merit. Let us prove our (85) gratitude to the dead by faithfully (86) endeavoring to (87) elevate the (88) station, to (89) enlarge the (90) usefulness, and to (91) raise the (92) character of the (93) schoolmaster (94) among us. Thus shall we best (95) testify our gratitude to the teachers and (96) guides of our own (97) youth, and thus most (98) effectually diffuse over our land (99) light and truth and (100) virtue. — *Gulian C. Verplanck*

University of the State of New York

High School Department

18TH EXAMINATION

SPELLING

Friday, January 27, 1904—4.15 to 5.15 p. m., **only**

The following numbered words are to be written by each candidate. The examiner should distinctly and properly pronounce each word (with its number prefixed), allowing sufficient time for writing it before the next word is pronounced. Papers entitled to 75 or more credits will be accepted.

One year ago the (1) automobile was an (2) alien on the (3) streets of the (4) world. Its (5) presence at the (6) curb was the (7) signal for a (8) crowd, the (9) excuse for a (10) blocking of the (11) sidewalk (12) traffic. In (13) motion it (14) frightened horses, and was a (15) nuisance on (16) terrestrial (17) highways. Today the motor car is a (18) common (19) vehicle of the (20) roadway. Its (21) passings and repassings (22) receive not a glance from the (23) promenaders on the (24) pavement, (25) tempt not a shy from the horses on the carriageway.

Years ago, when the (26) bicycle was a (27) possession of the rich, it, too, (28) attracted the (29) attention of the (30) curious (31) wherever it (32) appeared. As its use (33) became (34) familiar, as its cost became (35) popular, it became the vehicle of the (36) telegraph (37) messenger and the (38) policeman, of the (39) plowman (40) hastening townward, of the (41) clerk (42) hurrying (43) cityward from the (44) suburbs. Today its possession (45) demands (46) little more (47) notice than the (48) ownership of an (49) umbrella. (50) Tomorrow the automobile will be as the bicycle of (51) yesterday—the (52) conveyance of the (53) democrat as of the (54) aristocrat.

(55) Never, (56) however, will the automobile be an (57) inexpensive (58) purchase. Its (59) internal (60) mechanism must of (61) necessity be (62) fashioned from the best (63) material, must be (64) capable of (65) bearing a (66) mighty (67) strain, must be able to (68) withstand (69) tremendous wear and tear. The (70) reason for this is (71) obvious. On the great (72) railroads are (73) locomotives to all (74) intents and (75) purposes (76) constructed on the (77) principle of the automobile. But these (78) engines run on (79) specially laid rails, on (80) mathematically ballasted (81) tracks, on (82) carefully (83) leveled road beds. Yet are they (84) subjected to a (85) microscopic (86) cleaning and (87) overhauling each day at the (88) conclusion of their (89) journey, (90) minutely (91) inspected, (92) generously (93) oiled, and (94) renovated by (95) skilled mechanics. The automobile, on the other hand, must force its way over stony places, must (96) plunge (97) through slough, and, at its home coming, must be (98) content with the (99) rough and ready cleansing of an (100) ignorant attendant.—*Eustace Clavering*

University of the State of New York

High School Department

181ST EXAMINATION

SPELLING

Friday, March 25, 1904 — 1.15 to 2.15 p. m., only

The following numbered words are to be written by each candidate. The examiner should distinctly and properly pronounce each word (with its number prefixed), allowing sufficient time for writing it before the next word is pronounced. Papers entitled to 75 or more credits will be accepted.

The (1) death of Nelson was felt in (2) England as (3) something more than a (4) public (5) calamity. An (6) object of our (7) admiration and (8) affection was (9) suddenly taken from us; and it (10) seemed as if we had never, till then, (11) known how (12) deeply we (13) loved and (14) reverenced him. What the (15) country had lost in its (16) great (17) naval hero was (18) scarcely taken into the (19) account of grief. So (20) perfectly (21) indeed had he (22) performed his part, that the (23) maritime war, after the (24) battle of Trafalgar, was (25) considered at an end: the fleets of the enemy were not (26) merely (27) defeated, but (28) destroyed: new navies must be (29) built, and a new race of (30) seamen (31) reared for them, before the (32) possibility of their (33) invading our (34) shores could again be (35) contemplated. It was not, (36) therefore, from any (37) selfish (38) reflection upon the (39) magnitude of our loss that we (40) mourned for him: the (41) general (42) sorrow was of a (43) higher (44) character. The (45) people of England (46) grieved that (47) funeral (48) ceremonies and public (49) monuments were all which they could now (50) bestow upon him whom the king, the (51) legislature and the (52) nation would have (53) alike (54) delighted to (55) honor; whom every (56) tongue would have (57) blessed; whose (58) presence in every (59) village (60) through which he might have (61) passed would have (62) wakened the (63) church bells and would have (64) drawn (65) children from their (66) sports to gaze upon him. The (67) victory of Trafalgar was (68) celebrated, indeed, with the (69) usual forms of (70) rejoicing, but they were (71) without joy; for such (72) already was the (73) glory of the (74) British navy, through Nelson's (75) surpassing (76) genius, that it scarcely seemed to (77) receive any (78) addition from the most (79) signal victory that ever was (80) achieved upon the seas: and the (81) destruction of this (82) mighty (83) fleet, by which all the maritime (84) schemes of (85) France were (86) totally (87) frustrated, (88) hardly (89) appeared to add to our (90) security or (91) strength; for, (92) while Nelson was (93) living to (94) watch the (95) combined (96) squadrons of the (97) enemy, we felt (98) ourselves as secure as now, when they were no (99) longer in (100) existence. —*Robert Southey*

High School Department

181ST EXAMINATION

SPELLING

Wednesday, March 23, 1904—4.15 to 5.15 p. m.,

The following numbered words are to be written by each ca
The examiner should distinctly and properly pronounce each wo
its number prefixed), allowing sufficient time for writing it b
next word is pronounced. Papers entitled to 75 or more credit
accepted.

The most (1) effectual (2) expedient (3) employed
Alfred the Great for the (5) encouragement of (6) l
was his own (7) example, and the (8) constant (9) a
with which, (10) notwithstanding the (11) multiplic
(12) urgency of his (13) affairs, he employed (14) hin
the (15) pursuits of (16) knowledge. He (17) divided l
into three (18) equal (19) portions: one was employed
sleep; (21) another in the (22) despatch of (23) busi
(24) third in study and (25) devotion: and, that he (26
more (27) exactly (28) measure the hours, he made
(29) burning (30) tapers of equal (31) length, which he (3
in (33) lanterns,—an expedient (34) suited to that ru
when the (35) mechanism of (36) clocks and (37) watc
(38) unknown. And by such a (39) regular (40) distrib
his time, though he (41) often (42) labored under gr
bodily (44) infirmities, this (45) martial hero was able, (
ing a life of no (47) extraordinary length, to (48) acqui
knowledge, and even to (49) compose more books, th
(50) studious men have, in more (51) fortunate ages, m
(52) object of their (53) uninterrupted (54) industry.

(55) Meanwhile this (56) prince was not (57) negli
encouraging the (58) vulgar and mechanical arts, whic
more (59) sensible though not (60) closer (61) connecti
the (62) interests of (63) society. He (64) invited f
(65) quarters (66) industrious (67) foreigners to (68) r
his (69) country, which had been (70) desolated by the (
ages of the (72) Danes. He (73) introduced and enc
(74) manufactures of all kinds; and no (75) inventor or
prover of any (77) ingenious art did he (78) suffer to go
rewarded. He (80) prompted men of (81) activity
betake (83) themselves to (84) navigation, to push (8
merce into the most (86) remote countries, and to
(87) riches by (88) propagating industry (89) among (9
fellow-citizens. Both living and dead, Alfred was (91) re
by foreigners, no less than by his own (92) subjects,
(93) greatest prince, after Charlemagne, that had (94) ap
in (95) Europe during (96) several ages, and as one
(97) wisest and best that had ever (98) adorned the (99)
of any (100) nation.—*David Hume*

High School Department

182D EXAMINATION

SPELLING

Friday, June 17, 1904—1.15 to 2.15 p. m., only

The following numbered words are to be written by each candidate. The examiner should distinctly and properly pronounce each word (with its number prefixed), allowing sufficient time for writing it before the next word is pronounced. Papers entitled to 75 or more credits will be accepted.

The (1) establishment of a new (2) national (3) industry which will (4) provide a (5) congenial (6) occupation for (7) American (8) women (9) seeking (10) remunerative (11) employment at home, has been one of the (12) cherished (13) ambitions of the (14) officials of the United States Department of Agriculture, and it bids (15) fair to find its (16) fullest (17) realization in the (18) rapid (19) development of (20) silkworm culture. The fact that silk culture may be (21) carried on in any (22) ordinary (23) residence, and with the most (24) modest (25) expenditure for (26) equipment, (27) would (28) appear to (29) substantiate the (30) claim that no other (31) business (32) enterprise lies so well (33) within the (34) limitations of the (35) members of the (36) gentler sex who (37) desire to (38) engage in some (39) profitable (40) activity without (41) neglecting (42) household (43) duties. (44) Strangely (45) enough, silkworm culture, to the (46) opportunities of which the American (47) people are now being (48) aroused, was carried on (49) quite (50) extensively in this (51) country over a (52) century ago. (53) Indeed, it is one of the (54) comparatively few activities which, (55) having once (56) gained a (57) foothold on the American (58) continent, was (59) allowed to (60) languish and (61) practically (62) decline. The first (63) inauguration of the industry in America was (64) characterized by (65) circumstances (66) somewhat (67) romantic. James 1, of (68) England, had the (69) greatest (70) faith in the industry, and in 1622 he sent to (71) Virginia—his (72) favorite colony—a great quantity of silkworm eggs and (73) mulberry trees, and (74) offered (75) handsome (76) premiums for (77) colonial silk, but after brief (78) experiments the (79) planters (80) abandoned the new (81) venture, and again (82) turned their (83) attention to the (84) cultivation of (85) tobacco.

The colonists who came to Carolina and (86) Georgia also (87) brought silkworms, and in these (88) sections of the country the industry (89) thrived in a much greater (90) degree. For more than a (91) quarter of a century silk was (92) exported to (93) London (94) continuously in (95) considerable (96) quantities. After the War for Independence silk culture did not (97) revive in the South, but it was after the colonies (98) attained their (99) freedom that the industry came to its fullest development in the more (100) northerly climes.

High School Department

182D EXAMINATION

SPELLING

Wednesday, June 15, 1904—4.15 to 5.15 p. m., only

The following numbered words are to be written by each candidate. The examiner should distinctly and properly pronounce each word (with its number prefixed), allowing sufficient time for writing it before the next word is pronounced. Papers entitled to 75 or more credits will be accepted.

(1) Undoubtedly the (2) decision of the (3) Alaskan (4) boundary (5) commission will be (6) regarded by all (7) impartial (8) observers as a (9) notable (10) victory for (11) international (12) arbitration. It must be (13) admitted that the (14) average (15) American was (16) disposed to (17) treat the (18) Canadian (19) contention with good-natured (20) contempt, and even to (21) question the (22) sincerity of the (23) statesmen and (24) jurists of the Dominion as regards the case. So great was the (25) general (26) confidence here in the (27) strength and (28) clearness of the American (29) position that the decision (30) caused no (31) surprise (32) whatever. In fact the (33) keen (34) disappointment and (35) bitterness (36) manifested by the Canadians (37) appeared most (38) extraordinary to most of us. "Did they not (39) expect this? Did they (40) actually (41) believe in (42) their own (43) assertions?" were the questions (44) tacitly (45) asked by our (46) editors and public men.

But the Canadians were (47) decidedly in (48) earnest and they (49) anticipated a very (50) different (51) award. They were (52) firmly (53) persuaded that (54) England, as represented by Lord Chief Justice Alverstone, (55) sacrificed their (56) rights and (57) interests in order to (58) avoid (59) misunderstanding or (60) unpleasantness with the United States. Their (61) representatives on the commission (62) publicly (63) attacked the decision as (64) political (65) rather than (66) judicial and (67) refused to sign or (68) approve it. This was an extraordinary (69) attitude to (70) assume, for the (71) criticism (72) impugned the (73) motives of the (74) president of the commission and by (75) implication at least (76) charged (77) deliberate (78) subordination of (79) justice and right to (80) expediency and (81) sentiment. Yet the commissioners had all Canada with them, and it is the (82) general (83) opinion that the award will have a very (84) serious (85) adverse (86) effect on the (87) imperialist (88) movement. Of (89) course the (90) agitation will (91) subside, and the (92) settlement of the boundary question will be (93) acquiesced in even by the most (94) violent of its (95) critics. As Prof. Goldwin Smith said, Canada (96) obtained more by arbitration, and with the aid of England, than she could (97) possibly have (98) secured in any other way and as an (99) independent (100) power.

University of the State of New York

High School Department

180TH EXAMINATION

ELEMENTARY ENGLISH

Friday, January 29, 1904—9.15 a. m. to 12.15 p. m., only

Answer questions 14–15 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Analyze by diagram or otherwise the following sentence:

If, in alarm, he uttered a plaintive *cry*, she bounded to him, and, with every demonstration of affection, licked *his* mottled skin till it *shone again*.

2 Parse, from the quotation in question 1, *cry*, *his*, *shone*, *again*.

3 Write sentences containing the possessive plural of *each* of the following: *lady*, *son-in-law*, *hero*, *ox*, *fisherman*.

4 One of your former teachers has left town. Write a letter to her, describing your school work and giving details about the studies that you specially like.

5 Give the part of speech and the syntax of *each* of the italicized words in the following: (*a*, *b*) There is *something* uncanny and *disagreeable* about her, (*c*) I turned back, therefore, *thinking* of the honey-laden tree, (*d*) I don't know *what* to do, (*e*) The curious note of a chicken caused me to look up from my *reading*.

6 Select from the following the incorrect sentences and rewrite in correct form, giving the reason for each correction: (*a*) He is wiser than I, so I have taken his advice, (*b*) In the scales were found the necklace of pearls, (*c*) Every citizen should see that the trees in front of their property are trimmed, (*d*) He told her that she ought not to do it, (*e*) She sat the dish on the table and then went away, (*f*) Neither James nor his cousin was at home, (*g*) Please, Mother, can I go with Grace?

7 Combine the following statements into a complex sentence containing but *one* subordinate clause:

In May a sparrow built its nest. The sparrow had evidently met with disaster earlier in the season. It built its nest in a mass of woodbine. The mass was thick. The woodbine was near my window.

8 Parse the italicized words in the following: (*a*, *b*) He began *that* sweeping spiral movement in *which* he climbs the sky, (*c*) In a few days one of them *had eaten* the other, (*d*) I

soon regretted my precipitation in killing *her*, because such interference is generally unwise.

9 Write (*a*) an exclamatory sentence containing an infinitive phrase, (*b*) a declarative sentence containing a noun clause, (*c*) an interrogative sentence containing an adverbial clause.

10 Write the first person singular of *each* of the following: (*a*) the passive, indicative, present of *lead*, (*b*) the active, indicative, past (imperfect) of *see*, (*c*) the active, indicative, present perfect (perfect) of *freeze*, (*d*) the progressive, indicative, past perfect (pluperfect) of *drive*, (*e*) the active, indicative, future perfect of *lay*.

11 Write original sentences illustrating *four* different uses of the nominative case. State the use of the nominative that each sentence illustrates.

12 Explain the meaning of *five* of the italicized words in the following:

> Near to the bank of the river, o'ershadowed by oaks from whose
> branches
> *Garlands* of Spanish moss and of *mystic* mistletoe *flaunted*,
> Such as the *Druids* cut down with golden hatchets at *Yule-tide*,
> Stood, *secluded* and still, the house of the herdsman. A garden
> Girded it round about with a belt of *luxuriant* blossoms,
> Filling the air with *fragrance*.

13 Mention *two* occasions when Michael the fiddler played for the pleasure of the Acadians. Describe *one* of these occasions.

14–15 Write an essay of at least 100 words on *one* of the following topics, paying special attention to spelling, capitalization, punctuation, grammatic construction, proper use of words and sentence structure [Essays on subjects other than those assigned will not be accepted]:

(*a*) A Contented Farmer [Describe the home of Benedict Bellefontaine, stating some reasons for his happiness and showing how this happiness was destroyed], (*b*) A Ministering Angel [Let one of the attendants tell of Evangeline's work among the sick in Philadelphia and of her meeting with Gabriel].

NOTE.—Pupils not familiar with *Evangeline* may write on *one* of the following: (*a*) A Pleasant Journey, (*b*) An Unexpected Visitor.

University of the State of New York

High School Department

181ST EXAMINATION

ELEMENTARY ENGLISH

Friday, March 25, 1904—9.15 a. m. to 12.15 p. m., only

Answer questions 14–15 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Analyze by diagram or otherwise the following sentence: The person, with murder in his heart, *chooses* a cloudy night, seats *himself* in a canoe, *which* is *noiselessly* paddled by the guide, and explores the shore of the lake.

2 Parse, from the quotation in question 1, *chooses*, *himself*, *which*, *noiselessly*.

3 Write original sentences illustrating the use of *but* as (*a*) an adverb, (*b*) a preposition, (*c*) a conjunction; *either* as (*a*) an adjective, (*b*) a conjunction.

4 You have a cousin attending school at Los Angeles, California, who has never known a cold winter with snow. Write him a letter, telling him something about the past winter here.

5 Classify the following sentences as to form and as to use (meaning): (*a*) It is not the perfume of any flower that attracts the bees, (*b*) After twenty-four hours their patience is rewarded, the honey is turned into wax, (*c*) What perils beset their nests, even in the most favored localities! (*d*) The jays were lingering near, very demure and silent, and probably ready to join a crusade against nest-robbers, (*e*) Is there honor among thieves even in the feathered tribes?

6 Give the part of speech and the syntax of *each* of the italicized words in the following:

When *that* golden era comes *which* the poets think is behind *us*, and the prophets declare is about to be ushered in . . . perhaps the gentle-hearted deer will be respected, and will find that men are not more *savage* to the weak than are the cougars and *panthers*.

7 Select from the following the incorrect sentences and rewrite in correct form, giving the reason for each correction: (*a*) She told me who she expected to see, (*b*) Either Horace or William is to try for the prize, (*c*) No sooner had we left the room when we heard a child crying, (*d*) He don't know which one is coming for me, (*e*) Allen and Hart's store was burned last night, (*f*) This matter is to remain a secret between you and I, (*g*) Will you let John and me go to the station?

8 Combine the following statements into a complex sentence: She went on for a quarter of an hour. She went on at a rapid pace. She cleared the moose-bushes with bound after bound. She paused for neither brook nor ravine. The baying of the hounds grew fainter behind her.

9 Write original sentences containing the following forms of the verb *eat:* (*a*) active, indicative, present, (*b*) emphatic, indicative, past (imperfect), (*c*) active, indicative, present perfect (perfect), (*d*) active, progressive, indicative, past (imperfect), (*e*) emphatic, imperative, present.

10 Parse the italicized words in the following: (*a*, *b*) Hunting the *deer* in the Adirondacks is conducted in the most *manly* fashion, (*c*, *d*) When we *all* live in real concord,—perhaps the gentle-hearted deer *will be respected.*

11 Write original sentences illustrating the following: (*a*) an interrogative sentence containing an infinitive phrase, (*b*) a complex imperative sentence, (*c*) an infinitive phrase used as the subject of a sentence.

12 Explain the meaning of *five* of the italicized words in the following:

a There upon mats and skins they reposed, and on cakes of the maize-ear
Feasted, and *slaked* their thirst from the *water-gourd* of the teacher.

b The fields of maize . . .
Lifted their slender *shafts*, with leaves *interlacing*, and forming
Cloisters for *mendicant* crows and granaries *pillaged* by squirrels.

c The notes of the robin and bluebird
Sounded sweet upon *wold* and in wood.

13 Describe the childhood of Gabriel and Evangeline, telling how they spent their time out of school.

14–15 Write an essay of at least 100 words on *one* of the following topics, paying special attention to spelling, capitalization, punctuation, grammatic construction, proper use of words and sentence structure [Essays on subjects other than those assigned will not be accepted]:

(*a*) A Time of Sorrow [Let Gabriel tell the Black Robe chief at the Mission what happened from the time the Acadians left the church till he embarked], (*b*) A Haven of Peace [Describe the village of Grand-Pré, giving an account of the life and customs of the inhabitants].

NOTE—Pupils not familiar with *Evangeline* may write on *one* of the following: (*a*) An Alarm of Fire, (*b*) An Intelligent Cat.

University of the State of New York

High School Department

182D EXAMINATION

ELEMENTARY ENGLISH

Friday, June 17, 1904—9.15 a. m. to 12.15 p. m., only

Answer questions 14–15 and eight of the others but no more. *If more than eight of the others are answered only the first eight answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Analyze by diagram or otherwise the following sentence:

But the birds have found out the *trick* of the jay, and when he comes *sneaking* through the trees in May and *June* in quest of eggs, he *is* quickly *exposed* and roundly abused.

2 Parse, from the quotation in question 1, *trick*, *sneaking*, *June*, *is exposed*.

3 Write sentences containing (*a*) the possessive plural of *sheep*, (*b*) the possessive plural of *mosquito*, (*c*) *either* used as an adjective, (*d*) *about* used as an adverb, (*e*) *both* used as a pronoun.

4 Write to a friend a letter containing an invitation to spend the Fourth of July with you and give your plans for entertainment.

5 Give the part of speech and the syntax of *each* of the italicized words in the following: The American deer in the wilderness, *left* to himself, leads a comparatively harmless *but rather* stupid *life*, with only such excitement as *his* own timid fancy raises.

6 Select from the following the incorrect sentences and rewrite in correct form, giving the reason for each correction: (*a*) The storm was so severe that three men were froze to death, (*b*) He did not know whom to ask for the paper, (*c*) She had just laid down when the carriage drove up to the door, (*d*) Texas is larger than any state in the Union, (*e*) It will be better for you and me to go together, (*f*) He both wanted you and your sister to come this evening, (*g*) In his autobiography Franklin tells the story of his struggles in life.

7 Combine the following statements into a complex sentence:

I was going up the side of a cliff. It was about the first of November. I saw a vigorous young apple-tree. The apple-tree had shot up amid the rocks and open woods. The apple-tree had now much fruit on it.

8 Write original sentences illustrating *two* uses of the nominative case (not including the subject nominative) and *two* uses

of the objective case. State the use of the nominative and of the objective that each sentence illustrates.

9 Parse the italicized words in the following: (*a*, *b*) The *hunters then* make their way to this retreat on snow-shoes, and from the top of the banks pick off the deer at leisure with their rifles, (*c*, *d*) The *great* bugaboo of the birds is the *owl*.

10 Write original sentences containing the third person singular of *each* of the following: (*a*) active, indicative, present of *freeze*, (*b*) active, indicative, past perfect (pluperfect) of *eat*, (*c*) passive, indicative, past (imperfect) of *drive*, (*d*) progressive, indicative, present perfect (perfect) of *go*, (*e*) progressive, indicative, past (imperfect) of *do*.

11 Assume that you are employed by a book firm and that John Strong has paid his account to you. Write in the name of the firm a receipt acknowledging the payment.

12 Explain the meaning of *five* of the italicized words in the following:

> This is the forest primeval. The murmuring pines and the hemlocks,
> *Bearded* with moss, and in garments green, indistinct in the twilight,
> Stand like *Druids* of *eld*, with voices sad and *prophetic*,
> Stand like *harpers hoar*, with beards that rest on their bosoms.
> Loud from its rocky caverns, the *deep-voiced* neighboring ocean
> Speaks, and in accents disconsolate answers the *wail* of the forest.

13 Describe the scene that ended the day's work on the farm of Benedict Bellefontaine.

14–15 Write an essay of at least 100 words on *one* of the following topics, paying special attention to spelling, capitalization, punctuation, grammatic construction, proper use of words and sentence structure [Essays on subjects other than those assigned will not be accepted]:

(*a*) A Fruitless Search [Let Gabriel tell the story of his separation from Evangeline and of his search for her till he passed her on the Atchafalaya], (*b*) The Eden of Louisiana [Describe the prairie home made by Basil in Louisiana].

NOTE—Pupils not familiar with *Evangeline* may write on *one* of the following: (*a*) A School-room and Its Occupants, (*b*) The Adventures of a Lucky Boy.

University of the State of New York

High School Department

179TH EXAMINATION

ADVANCED ENGLISH

Tuesday, September 29, 1903 — 1.15 to 4.15 p. m., only

Answer questions 13–15 and seven of the others but no more, *including at least three from the first five. If more than seven of the others are answered only the first seven answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Select from the following quotations (*a*) a noun clause, (*b*) an adjective clause, (*c*) an adverbial clause; mention the subdivision of the adverbial clause and give the syntax of each clause selected:

(*a*) It was the verger, who came *to inform me* that it was time *to close the library*, (*b*) I moved forward to get a nearer view, *when* his eye caught *mine*.

2 Parse, from the quotation in question 1, *to inform*, *me*, *when*, *mine*. Give the syntax of the phrase *to close the library*.

3 Write original sentences containing phrases denoting *three* of the following: (*a*) agency, (*b*) means or instrument, (*c*) place in which, (*d*) limit of motion, (*e*) accompaniment.

4 Give the classification (subdivision if adverbial) and the syntax of *each* of the subordinate clauses in the following sentences: (*a*) He declined two bishoprics that he might shut himself up and write for posterity, (*b*) In the evening we reached a village where I had determined to pass the night, (*c*) Our meeting was extremely cordial, for the countenance of an old fellow-traveler always brings up the recollections of a thousand pleasant scenes.

5 Write original sentences containing *three* of the following: (*a*) an adjective clause modifying a noun in the objective case, (*b*) a noun clause used as an attribute complement (predicate nominative), (*c*) an adverbial clause of degree, (*d*) an adverbial clause of manner, (*e*) a noun clause used as the object of a preposition.

6 Write a letter to a friend, telling him your plans for the future.

7 Select from the following the incorrect sentences and rewrite in correct form, giving the reason for each correction: (*a*) He asked us, Mary and I, if we would wait till Friday, (*b*)

We can have but one more lesson this week, (*c*) Writing the letter in a hurry, the address was omitted, (*d*) He traveled a long ways to hear the lecture, (*e*) She must have lain there an hour before the accident was discovered, (*f*) The teacher crossed out the third and fourth sentence, (*g*) If you had studied as hard as we have you would pass your examinations.

8 Parse each italicized word in the following: (*a*, *b*) They are the caskets which inclose within a small compass the *wealth* of the language—its family *jewels*, (*c*) He gives the *choicest* thoughts in the choicest language, (*d*, *e*) By degrees the shouts of merriment grew *fainter* and fainter, and at length *died* away.

9 Write original sentences containing infinitive phrases used in *three* of the following ways: (*a*) as an adjective modifier, (*b*) as an attribute complement (predicate nominative), (*c*) as object of a preposition, (*d*) as an independent element, (*e*) as direct object of a verb.

10 Distinguish in meaning the sentences in *each* of the following groups: (*a*) He shall not leave till all is done; He will not leave till all is done, (*b*) He may go tomorrow if it is pleasant; He can go tomorrow if it is pleasant; He must go tomorrow if it is pleasant.

11 Give, from *Lady of the Lake*, Brian's prophecy and describe the incident that, in your opinion, fulfils this prophecy.

12 Explain the meaning of the following quotation from *Lady of the Lake:*

My child, the chase I follow far,
'Tis mimicry of noble war;
And with that gallant pastime reft
Were all of Douglas I have left.
I met young Malcolm as I strayed
Far eastward, in Glenfinlas' shade;
Nor strayed I safe, for all around
Hunters and horsemen scoured the ground.
This youth, though still a royal ward,
Risked life and land to be my guard . . .
And Roderick shall his welcome make,
Despite old spleen, for Douglas' sake.

13–15 Write an essay of at least 150 words on *one* of the following topics, paying special attention to spelling, punctuation, grammatic construction and proper use of words; also some attention to introduction, proper grouping of ideas into paragraphs and pleasant transition between sentences [Essays on subjects other than those assigned will not be accepted]:

(*a*) An Ideal Statesman, (*b*) A Trolley Ride.

University of the State of New York

High School Department

180TH EXAMINATION

ADVANCED ENGLISH

Monday, January 25, 1904—1.15 to 4.15 p. m., only

Answer questions 13–15 and seven of the others but no more, *including at least three from the first five. If more than seven of the others are answered only the first seven answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Select from the following quotations *three* subordinate clauses, and give the classification (subdivision if adverbial) and the syntax of each clause selected:

(*a*) Those few owe their longevity to *being immured* like yourself in old libraries; *which*, suffer *me* to add, you *might* more properly and gratefully *have compared* to those infirmaries where, *by quiet fostering* and no employment, they often endure to an amazingly good-for-nothing old age, (*b*) Unless thought can be committed to something more permanent and unchangeable than such a medium, even thought must share the fate of everything else, and fall into decay.

2 Parse, from the quotation in question 1, *being immured*, *which*, *me*, *might have compared*. Give the syntax of the phrase *by quiet fostering*.

3 Write original sentences containing *three* of the following: (*a*) adverbial objective, (*b*) retained object (object with passive verb), (*c*) appositive of a noun in the objective case, (*d*) factitive object (objective complement or secondary object), (*e*) indirect (dative) object.

4 Give the part of speech and the syntax of *each* of the italicized words in the following: (*a*) A stage coach always carries animation with it, and puts the world in motion *as* it whirls along, (*b*) The horn, *sounded* at the entrance of a village, produces a general bustle, (*c*) *Some* hasten forth to meet friends, (*d*) The cyclops round the anvil suspend their *ringing* hammers, (*e*) The scene brought to mind an old writer's *account* of Christmas preparations.

5 Give the syntax of *three* of the italicized infinitives in the following: (*a*) I was just about *to launch* forth into eulogiums, (*b*) Its language, *to be* sure, was rather quaint and obsolete, (*c*) I shall endeavor *to render* it in modern parlance, (*d*) Books were written to give pleasure and *to be enjoyed*, (*e*) I could not but consider the library a kind of literary catacomb, where authors, like mummies, are left *to blacken* and molder in dusty oblivion.

6 A friend has written inquiring about your work in advanced English. Write him (her) a letter describing an interesting recitation in that subject.

7 Give the classification (subdivision if adverbial) and the syntax of *three* of the subordinate clauses in the following sentences: (*a*) It complained bitterly that it had not been opened for two centuries, (*b*) The moment he arrives where the horses are to be changed, he throws down the reins, (*c*) I was reminded of those days when I had known neither care nor sorrow.

8 Select from the following the incorrect sentences and rewrite in correct form, giving the reason for each correction: (*a*) I intended to have told you long ago, (*b*) Where did you say Bunker Hill is situated? (*c*) It may have been us that he wanted, (*d*) She is ambitious like her father was when he was in college, (*e*) Very few people know about the publication of the book, (*f*) I am sure that one out of every ten of the pupils do it, (*g*) He saw her and me as we climbed the hill.

9 Parse the italicized words in the following sentences: (*a*) I was considered a *model* of pure and elegant English, (*b, c, d, e*) "*Softly*, my worthy *friend*," replied I, "you are not aware how much *better* you are off than most *books* of your generation."

10 Combine the following statements into a complex sentence, changing the first statement to a clause of concession, the fourth statement to a prepositional phrase and the last statement to a participial phrase:

The door was but half open. A broad ray of light fell into the garret. The ray of light revealed the workman. The workman had an unfinished shoe on his lap. The workman was pausing in his labor.

11 Describe Ellen's refuge in Coir-nan-Uriskin.

12 Give an account of the circumstances under which the following was uttered:

> Then mayst thou to James Stuart tell,
> Roderick will keep the lake and fell,
> Nor lackey with his freeborn clan
> The pageant pomp of earthly man.
> More would he of Clan-Alpine know,
> Thou canst our strength and passes show.

13–15 Write an essay of at least 150 words on *one* of the following topics, paying special attention to spelling, punctuation, grammatic construction and proper use of words; also some attention to introduction, proper grouping of ideas into paragraphs and pleasant transition between sentences [Essays on subjects other than those assigned will not be accepted]:

(*a*) Two Warnings [Describe the manner in which James Fitz-James was twice warned of Murdoch's treachery], (*b*) The Exile's Story [Let Douglas relate the circumstances leading to his banishment and give an account of his restoration to the king's favor].

NOTE—Students not familiar with *Lady of the Lake* may write on *one* of the following: (*a*) A Christmas Party, (*b*) An Important Battle.

University of the State of New York

High School Department

181ST EXAMINATION

ADVANCED ENGLISH

Wednesday, March 23, 1904 — 1.15 to 4.15 p. m., only

Answer questions 13–15 and seven of the others but **no more,** *including at least three from the first five. If more than seven of the others are answered only the first seven answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Select from the following quotation *three* subordinate clauses, and give the classification (subdivision if adverbial) and the syntax of each clause selected:

And such, he anticipates, will be the fate of his own work, *which*, however it may be admired in its day, and *held* up as a model of purity, will in the course of years grow antiquated and *obsolete;* until it shall become almost as unintelligible in its native land as an Egyptian obelisk, or *one* of those Runic inscriptions *said* to exist in the deserts of Tartary.

2 Parse, from the quotation in question 1, *which*, *held*, *obsolete*, *one*, *said.*

3 Write original sentences containing *three* of the following: (*a*) *why* introducing an adjective clause, (*b*) *why* introducing a noun clause, (*c*) *as* introducing an adjective clause, (*d*) *as* introducing a clause of time, (*e*) *as* introducing a clause of manner.

4 Give the part of speech and the syntax of each italicized word in the following sentences: (*a*) They were returning *home* for the holidays, (*b*) Just within the passage is a small *door* on the left, (*c*) He has a pride in *having* his clothes of excellent materials, (*d*, *e*) I was enjoying that luxury of wandering thought *which* one is apt *to dignify* with the name of reflection.

5 Give the classification (subdivision if adverbial) and the syntax of each of *three* of the subordinate clauses in the following: (*a*) When off the box, he rolls about the inn yard with an air of the most absolute lordliness, (*b*) The country maid leaves half her market, and must be sent again, if she forgets a pack of cards on Christmas eve, (*c*) I was written in my own native tongue, at a time when the language had become fixed, (*d*) These remarks were couched in such intolerably antiquated terms, that I have had infinite difficulty in rendering them into modern phraseology, (*e*) It is owing to that very man that the literature of his period has experienced a duration beyond the ordinary term of English literature.

6 Assume that you have gone to visit your aunt in another state. Write a letter to your mother, telling her of your safe arrival and giving a description of your journey.

7 Parse the italicized words in the following: (*a*) Travelers of inferior order *were preparing* to attack this stout repast

while others sat smoking and *gossiping* over their ale on two high-backed oaken settles beside the fire, (*b*) Its pronunciation was *what*, in the present day, would be deemed barbarous, (*c*) Had you been left to the circulation of which you speak, you would long *ere* this have been no *more*.

8 Select from the following the incorrect sentences and re-write in correct form, giving the reason for each correction: (*a*) Climbing after apples, the boy's basket became so heavy that he could not hold it, (*b*) He gave three proofs that the earth was round, (*c*) I think it was he who asked for the book, (*d*) No professional man, no business man, in fact no man of sense, would risk their reputation in such a manner, (*e*) His first act should have been to have caught the horse by the head, (*f*) When driving through the valley we saw a beautiful sun-set, (*g*) Each of the boys knows that the book was lost.

9 Write original sentences containing phrases denoting the following: agency, accompaniment, limit of motion.

10 Combine the following statements into a complex sentence having but *one* subordinate clause:

The house formed one side of an inclosure. The house seemed to consist of two or three buildings. The buildings were high and narrow. The buildings were steep-roofed. The buildings projected from each other at right angles.

11 Describe the meeting of Ellen and her father when Ellen rowed to the mainland to meet him.

12 Give an account of the circumstances under which the following was uttered:

"Kinsman," she said, "his race is run
That should have sped thine errand on;
The oak has fallen,—the sapling bough
Is all Duncraggan's shelter now.
Yet trust I well, his duty done,
The orphan's God will guard my son.—
And you, in many a danger true,
At Duncan's hest your blades that drew,
To arms, and guard that orphan's head!"

13–15 Write an essay of at least 150 words on *one* of the following topics, paying special attention to spelling, punctuation, grammatic construction and proper use of words; also some attention to introduction, proper grouping of ideas into paragraphs and pleasant transition between sentences [Essays on subjects other than those assigned will not be accepted]:

(*a*) A Blighted Life [Relate the story of Blanche of Devan's life and show how she was avenged], (*b*) The Story of the King's Signet Ring [Explain the circumstances under which Fitz-James gave Ellen the ring and show how it fulfilled its mission].

NOTE—Students not familiar with *Lady of the Lake* may write on *one* of the following: (*a*) The Grandmother in the Home, (*b*) The Wild Flowers of Spring.

High School Department

182D EXAMINATION

ADVANCED ENGLISH

Monday, June 13, 1904—1.15 to 4.15 p. m., only

Answer questions 13-15 and seven of the others but **no more,** *including at least three from the first five. If more than seven of the others are answered only the first seven answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Select from the following quotation the subordinate clauses and give the classification (subdivision if adverbial) and the syntax of each clause selected:

> The *moment* he arrives where the horses are to be changed, he throws *down* the *reins* with something of an air, and abandons the cattle to the care of the hostler, his duty being merely to drive from one stage *to another*. When off the box, his hands *are thrust* into the pockets of his great coat, and he rolls about the inn yard with an air of the most absolute lordliness.

2 Parse, from the quotation in question 1, *moment, down, reins, are thrust.* Give the syntax of the phrase *to another.*

3 Give the part of speech and the syntax of *each* of the italicized words in the following: (*a*, *b*) I saw on one side the light of a *rousing* kitchen fire *beaming* through a window, (*c*) I leaned out of the coach window, in hopes of *witnessing* the happy meeting, (*d*, *e*) His *reasoning* was *cogent.*

4 Write original sentences containing *three* of the following: (*a*) a clause of concession, (*b*) a clause of manner, (*c*) a clause of degree, (*d*) a clause of condition, (*e*) a clause of result.

5 Give the classification (subdivision if adverbial) and the syntax of each of *three* of the italicized phrases in the following: (*a*, *b*) They were seizing an occasional moment *to exchange a flippant word,* and have a rallying laugh, *with the group* round the fire, (*c*) A gentleman stept out, and *by the light* of the lamps I caught a glimpse of a countenance which I thought I knew, (*d*, *e*) I had not been long *at the inn* when a post-chaise drove up *to the door.*

6 Write a letter to a friend, thanking him for the use of a book that you are returning. Mention the book by name and give your opinion of it.

7 Select from the following the incorrect sentences and rewrite in correct form, giving the reason for each correction: (*a*) A short time ago there appeared in your paper an advertisement of a letter for myself, (*b*) Any boy not having a ticket of admission must come with their parents, (*c*) Neither John nor his brother George is a graduate of that college, (*d*) You never have, and I trust you never will, lose your confidence in her.

(*e*) In place of the old case I have made another, and which I think will be more satisfactory, (*f*) Boys like you and him ought to be particular in selecting books to read, (*g*) Pure air, as well as sunshine, is needed for the growth of plants.

8 Give the classification (subdivision if adverbial) and the syntax of each of *three* of the subordinate clauses in the following: (*a*) They were under the particular guardianship of the coachman, to whom they addressed a host of questions, (*b*) "I declare," added I, "when I contemplate a modern library, filled with new works, in all the bravery of rich gilding and binding, I feel disposed to sit down and weep."

9 Parse the italicized words in the following: (*a*, *b*) I admired, for the hundredth time, *that* picture of convenience, neatness, and broad honest enjoyment, the *kitchen* of an English inn, (*c*) They look upon him *as* a man of great trust and dependence, (*d*, *e*) The youth must dance and sing *to get them* a heat, while the aged sit by the fire.

10 Combine the following statements into a simple sentence:

There were three young girls in the room. They were perhaps 14 or 15 years old. They were seated in different parts of the room. The room was large. The girls were busy with crochet needles and tatting-shuttles.

11 Relate Roderick's defense of his forays as given by him to Fitz-James.

12 State by whom and under what circumstances the following quotation was uttered, and give the meaning of the quotation, paying special attention to the italicized words:

> Fear nothing for thy *favorite hold;*
> The spot an angel *deigned* to grace
> Is blessed, though robbers haunt the place.
> Thy *churlish courtesy* for those
> Reserve, who fear to be thy foes.

13–15 Write an essay of at least 150 words on *one* of the following topics, paying special attention to spelling, punctuation, grammatic construction and proper use of words; also some attention to introduction, proper grouping of ideas into paragraphs and pleasant transition between sentences [Essays on subjects other than those assigned will not be accepted]:

(*a*) Omens of Evil [Give an account of the falling of the sword when Fitz-James entered Roderick's home and of the disturbing dreams that came to the guest], (*b*) The Taghairm [Describe the augury practised by Brian to discover what would be the outcome of the war, and show how the prophecy made by him was fulfilled].

NOTE—Students not familiar with *Lady of the Lake* may write on *one* of the following: (*a*) The Advantages of Using Good English, (*b*) A Curious Dream.

High School Department

180TH EXAMINATION

ENGLISH—First Year

Monday, January 25, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but no more, *including at least five questions from the first division. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. The whole paper will be criticized as an exercise in English composition. Papers entitled to 75 or more credits will be accepted.*

First division 1 Select from the following quotations *three* subordinate clauses, and give the classification (subdivision if adverbial) and the syntax of each clause selected:

(*a*) Whether it was another of those odd day-dreams *to which* I am *subject*, I have never to this moment been able to discover, (*b*) They had been looking out of the coach windows for the last few miles, *recognizing* every tree and cottage as they approached *home*, (*c*) To these circumstances it *may be owing* that the fountains of thought have not been broken up.

2 Parse, from the quotations in question 1, *subject*, *recognizing*, *home*, *may be owing*. Give the syntax of the phrase *to which*.

3 Write original sentences containing *three* of the following: (*a*) a noun used as a nominative absolute, (*b*) a noun used in the nominative case after a passive verb, (*c*) a noun in apposition with an attribute complement (predicate nominative), (*d*) a noun in the possessive case modifying an objective complement (factitive object), (*e*) a noun in the objective case after the infinitive *to be*.

4 Write an informal note of thanks for a Christmas gift, stating why you were specially pleased with it.

5 Give the syntax of *three* of the italicized infinitives in the following: (*a*) He built a pyramid of books *to perpetuate* his name, (*b*) It began with railings about the neglect of the world—about merit being suffered *to languish* in obscurity, (*c*) I would invite my reader *to put* on that genuine holiday spirit which is tolerant of folly, (*d*) He is always a personage full of mighty cares and business, having so many commissions *to execute*, (*e*) *To discuss* all these at an inn was impossible.

6 Select from the following the incorrect sentences and rewrite in correct form, giving the reason for each correction: (*a*) We can not remember ever to have read a more interesting story, (*b*) I had expected to have seen her before she went home, (*c*) I said before I began the work I wished to rest a few moments, (*d*) When he was here he not only taught mathematics but history and literature, (*e*) We shall be pleased to accept your kind invitation, (*f*) Having crossed the river, the old chapel was seen in the distance, (*g*) The jury were unable to agree and the prisoner was discharged.

7 Give the classification (subdivision if adverbial) and the syntax of *three* of the italicized phrases in the following: (*a*) He had a large bunch of Christmas greens stuck *in the button-hole* of his coat, (*b*) It was soberly lighted *by a row* of Gothic windows, (*c*) It opened upon a gloomy passage leading *to the chapter-house*, (*d*) Authorship was a limited and unprofitable craft, pursued chiefly *by monks* in the leisure of their cloisters, (*e*) Language gradually varies, and *with it* fade away the writings of authors who have flourished their allotted time.

8 Parse the italicized words in the following sentences: (*a*) He is said to have written *nearly* 200 volumes, (*b*, *c*) *What* do we hear of Giraldus Cambrensis, the *historian*, antiquary, philosopher, theologian, and poet? (*d*) I would have a rule *passed* that the dean should pay each of us a visit at least once a *year*, (*e*) The earth would groan with rank and excessive vegetation, and its surface become a tangled *wilderness*.

Second division 9 Give, from the "Voyage," an account of the author's sensations on leaving land and of his meditations while on the sea.

10 Describe, from "Rip Van Winkle," the changes in the village noticed by Rip Van Winkle after his 20 years' sleep.

11 Describe, from the "Legend of Sleepy Hollow," the place in which the headless horseman was most frequently seen, and give an account of the experiences of old Brouwer and Brom Bones with this specter.

12 Describe, from *Ivanhoe*, the condition of the English nation during the absence of Richard Coeur de Lion from England.

13 State by whom and under what circumstances the following quotation was uttered, and give the meaning of the quotation, paying special attention to the italicized words:

> Though not from *copse*, or heath, or *cairn*,
> Start at my whistle clansmen stern,
> Of this small horn one feeble blast
> Would fearful *odds* against thee cast.

14 Describe, from the *Courtship of Miles Standish*, the meeting of the council to decide on peace or war.

15 Give, from *Snow-bound*, a description of the school-master, mentioning some of his various accomplishments.

University of the State of New York

High School Department

182D EXAMINATION

ENGLISH—First Year

Monday, June 13, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but no more, *including at least five questions from the first division. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. The whole paper will be criticized as an exercise in English composition. Papers entitled to 75 or more credits will be accepted.*

First division 1 Select from the following quotation *three* subordinate clauses and give the classification (subdivision if adverbial) and the syntax of each clause selected:

A few *centuries* since, five or six hundred manuscripts constituted a great library, but *what* would you say to libraries such *as* actually exist, *containing* three or four hundred thousand volumes? . . . Unless some unforeseen mortality should break out among the progeny of the muse, now that she has become so *prolific*, I tremble for posterity.

2 Parse, from the quotation in question 1, *centuries*, *what*, *as*, *containing*, *prolific*.

3 Assume that your father has taken you to visit some noted place. Write a letter to your mother, describing the place and telling her for what it is noted.

4 Combine the following statements into a simple sentence:

It was a fine autumnal day. It was late in the afternoon. Rip was panting and fatigued. He threw himself on a green knoll. The knoll was covered with mountain herbage.

5 Give the part of speech and the syntax of *each* italicized word in the following: (*a*, *b*, *c*) I was loitering about the old gray cloisters of Westminster Abbey, *enjoying that* luxury of wandering thought which one is apt *to dignify* with the name of reflection, (*d*, *e*) I could not *but* notice the more than ordinary air of bustle and importance of the coachman, who wore his hat a *little* on one side.

6 Select from the following the incorrect sentences and rewrite in correct form, giving the reason for each correction: (*a*) He possessed charity, sympathy and patience, which are qualities which make the world better, (*b*) The Misses King intended to have given an afternoon tea, (*c*) You may take any that you see lying on the counter, (*d*) His reputation is equal to any writer in the country, (*e*) If we were to examine them under the microscope, we should find that not one of all the

specimens are alike, (*f*) It must have been very difficult to keep it a secret so long, (*g*) Neither the door nor the window was opened because of the storm.

7 Give the classification (subdivision if adverbial) and the syntax of each of *three* of the subordinate clauses in the following: (*a*) If he is not equal to the task, let them once in a while turn loose the whole school of Westminster among us, (*b*) Perhaps it might be owing to the pleasing serenity that reigned in my own mind, that I fancied I saw cheerfulness in every countenance throughout the journey.

8 Parse the italicized words in the following sentences: (*a*) The scene brought to mind an old writer's *account* of Christmas preparations, (*b*, *c*, *d*, *e*) It is *this* which has made English literature so extremely *mutable*, and the *reputation built* upon it so fleeting.

Second division 9 Give, from the "Wife," an account of Leslie's forebodings concerning the first meeting at the cottage and describe his happy disappointment.

10 Let Rip Van Winkle relate his experiences on the day when he went up the mountain.

11 Show, from "Christmas," how the season of the year adds enjoyment to Christmas.

12 Describe, from *Ivanhoe*, the scene around the trysting tree after the siege of Torquilstone, closing with the arrival of the Lady Rowena.

13 Give an account of the circumstances under which the following words were uttered by Brian, and explain the meaning of the quotation:

> Which spills the foremost foeman's life,
> That party conquers in the strife.

14 Describe, from the *Courtship of Miles Standish*, the wedding of John Alden and Priscilla.

15 Give, from *Snow-bound*, Whittier's tribute to his youngest sister.

High School Department

180TH EXAMINATION

ENGLISH—Second Year

Tuesday, January 26, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more,** *including at least three from the first division. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. The whole paper will be criticized as an exercise in English composition. Papers entitled to 75 or more credits will be accepted.*

First division 1 Develop the following topic sentence into a paragraph of contrast, using at least 75 words: A great change came over Silas Marner after he left Lantern Yard.

2 In the following paragraph give the topic sentence, state the way in which the topic sentence is developed, select a periodic sentence and point out *two* different figures of speech, giving the name of the figure in each case:

O glorious Art! thou art the image of the Creator's own. The innumerable forms, that wander in nothingness, start into being at thy beck. The dead live again. Thou recallest them to their old scenes, and givest their gray shadows the luster of a better life, at once earthly and immortal. Thou snatchest back the fleeting moments of history. With thee there is no past, for, at thy touch, all that is great becomes forever present; and illustrious men live through long ages, in the visible performance of the very deeds which made them what they are. O potent Art! as thou bringest the faintly revealed Past to stand in that narrow strip of sunlight, which we call Now, canst thou summon the shrouded Future to meet her there?

3 Criticize and correct the following: (*a*) It is one of the greatest joys a lover of books can have to have a holiday to spend in the library, (*b*) Clive bore the name of dunce in school and he laid the foundation of the British Empire in India, (*c*) The houses in this row are even and well built, while the irregularity of the houses in the next row is noticeable, (*d*) While going through the wilderness, a voice suddenly stopped him, (*e*) The knight, fearing that he would be in financial embarrassment, on the death of his mother, engaged smaller apartments.

4 State the figures of speech in the following and trace the points of comparison:

No book is serviceable until it has been read, and re-read, and loved, and loved again; and marked, so that you can refer to the passages you want in it, as a soldier can seize the weapon he needs in an armory, or a housewife bring the spice she needs from her store. Bread of flour is good but there is bread, sweet as honey, if we would eat it, in a good book.

5 Rewrite correctly the following letter:

Elgin, Ill., Jan. 22, 1904

My dear nephew:

I was pleased to hear from your Uncle Will that you were enjoying good health and of your satisfactory progress in your studies. He told me about the plans that you were making to attend the college that has the best course in civil engineering and I related it last night (we were at the tea-table) and everybody thought the civil engineering idea very good and said this profession was one that you were very well adapted to.

We all wish you success and we will be glad to hear from you often, or as often as you can spare the time from your studies.

Hoping that you are well, believe me

Your affectionate
Uncle John

6 Define *five* of the following: heroic verse, stanza, anapestic tetrameter, Spenserian stanza, alliteration, cadence, hypercatalectic verse.

Second division 7 Mention the three persons who disputed the report of Mr Higginbotham's death, and state the reasons that they gave for believing him alive.

8 Give, from the "Prophetic Pictures," a description of the painter and of the methods used by him in his work.

9 Mention *three* prominent traits of Sir Roger's character, illustrating each by reference to *Sir Roger de Coverley Papers.*

10 In *Sesame and Lilies* Ruskin says, "The entire difference between education and non-education (as regards the merely intellectual part of it), consists in *this accuracy.*"

State what Ruskin means by *this accuracy*, giving in substance the distinction that he makes between the educated and the uneducated person.

11 Contrast the punishment of the ancient mariner with that of his shipmates, stating, with reason, which punishment seems to you the more severe.

12 Describe the family worship depicted in the *Cotter's Saturday Night.*

13 Give the legend of the holy grail, and state the leper's idea of the true meaning of the grail, as expressed in the *Vision of Sir Launfal.*

14 Give a sketch of the meeting of the conspirators at the house of Brutus, as described in *Julius Caesar.*

15 Give, from the *First Bunker Hill Oration*, a sketch of the events immediately preceding the battle of Bunker Hill.

University of the State of New York

High School Department

182D EXAMINATION

ENGLISH—Second Year

Tuesday, June 14, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more,** *including at least three from the first division. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. The whole paper will be criticized as an exercise in English composition. Papers entitled to 75 or more credits will be accepted.*

First division

1 Develop the following topic sentence into a paragraph of at least 75 words by giving reasons or proofs: He was an ideal teacher.

2 Give the topic of the following paragraph, state the relation of the second sentence to the first sentence, show how transition is secured between the second and the third sentence without the use of a connective word, mention and point out the figure of speech in the last sentence and show why this sentence makes a good conclusion:

> There is, then, I repeat, only one pure kind of kingship; an inevitable and eternal kind, crowned or not: the kingship, namely, which consists in a stronger moral state, and a truer thoughtful state, than that of others, enabling you, therefore, to guide, or to raise them. Observe that word "state"; we have got into a loose way of using it. It means literally the standing and stability of a thing; and you have the full force of it in the derived word "statue"—"the immovable thing." A king's majesty or "state," then, and the right of his kingdom to be called a state, depends on the movelessness of both:—without tremor, without quiver of balance; established and enthroned upon a foundation of eternal law which nothing can alter, nor overthrow.

3 Mention the rhetorical quality violated in *each* of the following sentences and correct each sentence: (*a*) At the foot of the hill was a large house that stood far back from the road that led through the village, (*b*) The church was filled completely till there was no more room, (*c*) Being able to raise the window to her great surprise she heard the soldiers coming, (*d*) He is the most interesting writer in America, of short stories of course I mean, (*e*) Apply this cream when the skin is perfectly dry and rub it till it disappears.

4 Trace the points of comparison in the following quotation from *Silas Marner:*

> In old days there were angels who came and took men by the hand and led them away from the city of destruction. We see no white-winged angels now. But yet men are led away from threatening destruction: a hand is put into theirs which leads them forth gently towards a calm and bright land, so that they look no more backward; and the hand may be a little child's.

5 Prepare an outline for an essay on The Advantages of Travel, making sufficient subdivisions to show what matter you intend to include in the essay.

6 Give the name and explain the construction of the following stanza:

> O Scotia! my dear, my native soil!
> For whom my warmest wish to heaven is sent!
> Long may thy hardy sons of rustic toil
> Be blest with health, and peace, and sweet content!
> And, Oh, may heaven their simple lives prevent
> From luxury's contagion, weak and vile!
> Then, howe'er crowns and coronets be rent,
> A virtuous populace may rise the while,
> And stand a wall of fire around their much-lov'd isle.

Second division 7 Describe the sermon preached by Mr Hooper when he first wore the black veil in public and show how this sermon affected the congregation.

8 Describe, from "Howe's Masquerade," the last figure in the spectral procession and state its effect on Sir William Howe.

9 Show, from *Sesame and Lilies*, how Ruskin justifies the statement that England as a nation has despised science.

10 Explain (*a*) why prayer was impossible to the ancient mariner when he "looked to heaven, and tried to pray," (*b*) why prayer had become possible when he "with sobs did pray."

11 Explain the meaning of *each* of the following quotations from the *Cotter's Saturday Night:*

> *a* The father cracks of horses, pleughs, and kye.
> *b* But blate and laithfu', scarce can weel behave.
> *c* How 'twas a towmond auld, sin' lint was i' the bell.

12 Give, from the *Vision of Sir Launfal*, a description of the winter scene outside the castle at the time of the knight's return from his quest.

13 Give an account of an incident of Eppie's childhood illustrating Silas Marner's attempts at discipline.

14 Describe, from *Julius Caesar*, the circumstances connected with the reading of Caesar's will.

15 Mention, from the *First Bunker Hill Oration*, *three* reasons why the character of the American people "was calculated for setting the great example of popular governments."

University of the State of New York

High School Department

180TH EXAMINATION

ENGLISH—Third Year

Wednesday, January 27, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more,** *including at least three from the first division If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. The whole paper will be criticized as an exercise in English composition. Papers entitled to 75 or more credits will be accepted.*

First division 1 Define movement in narration. Show how movement may be (*a*) retarded, (*b*) accelerated.

2-3 State, with explanation, the kind of description illustrated in the following, give the point of view and discuss the selection and arrangement of details:

> The sun came forth again and the wind went down; and a little paddling took us beyond the iron works and through a delectable land. The river wound among low hills, so that sometimes the sun was at our backs and sometimes it stood right ahead, and the river before us was one sheet of intolerable glory. On either hand meadows and orchards bordered, with a margin of sedge and water flowers, upon the river. The hedges were of great hight, woven about the trunks of hedge-row elms; and the fields, as they were often very small, looked like a series of bowers along the stream. The river doubled among the hillocks, a shining strip of mirror glass; and the dip of the paddles set the flowers shaking along the brink.

4 Write a character sketch of the man or woman whom you most admire.

5-6 Write a narrative based on the following details: a foggy night, a steamer on a river, a collision, a narrow escape.

Second division 7

> I have oft heard
> My mother Circe with the *Sirens* three,
> Amidst the flowery-kirtled *Naiades*,
> Culling their potent herbs and *baleful* drugs,
> Who, as they sung, would take the prisoned soul,
> And lap it in *Elysium*.—*Comus*

Relate the story of the *Sirens*. Why are the drugs called *baleful?* Explain the reference in *Naiades*, *Elysium*.

8 Give, from the *Conduct of the Understanding*, Locke's explanation of why men do not make use of better principles.

9 Give, from the *Essay on Criticism*, Pope's directions to the critic "whose judgment the right course would steer."

10 Show, from the *Essay on Milton*, that the poetry of Milton and Dante has taken its character from their moral qualities.

11 Mention *three* of Burns's poems commented on by Carlyle in his *Essay on Burns* and give the substance of what Carlyle says in regard to *one* of them.

12 Give, from the essay on *Compensation*, Emerson's arguments to show that the doctrine of compensation is not the doctrine of indifferency, touching on (*a*) the retribution due to evil acts, (*b*) the gain of rectitude.

13 State by whom and under what circumstances the following was uttered and explain its connection with the context:

> For we are all, like swimmers in the sea,
> Poised on the top of a huge wave of fate,
> Which hangs uncertain to which side to fall.—*Sohrab and Rustum*

14 Mention, from the *Merchant of Venice*, the event that may be considered the beginning of the plot. Give in detail reason for your opinion.

15 Write at least 75 words on the humor displayed in *As You Like It*, justifying your statements by references to the play.

High School Department

182D EXAMINATION

ENGLISH — Third Year

Wednesday, June 15, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more,** *including at least three from the first division. If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. The whole paper will be criticized as an exercise in English composition. Papers entitled to 75 or more credits will be accepted.*

First division 1 Distinguish between impressional description and circumstantial description. Sketch a plan by which the two kinds of description may be combined in a paragraph with unity.

2 Write a description of a boy whose chief characteristic is ambition.

3–4 Assume that the boy mentioned in question 2 is determined to have a college education but has not the means of paying his expenses. Write a narrative showing how his ambition overcame all obstacles.

5–6 Write a paragraph of at least 100 words, describing a walk that you have recently taken. Explain the changes in the point of view.

Second division 7 Compare the view of life taken in *L'allegro* with that taken in *Il penseroso.* Illustrate by giving *two* parallel references.

8 She fables not. I feel that I do fear
Her words set off by some superior power;
And, though not mortal, yet a cold shuddering dew
Dips me all o'er, as when the wrath of *Jove*
Speaks thunder and the chains of *Erebus*
To some of Saturn's crew. — *Comus*

State the circumstances under which the above words were uttered. Explain the reference in *Jove*, *Erebus.* Give the meaning of the last *two* lines.

9 In the *Conduct of the Understanding*, Locke says:

> There is scarce anything more for the improvement of knowledge, for the ease of life, and the dispatch of business, than for a man to be able to dispose of his own thoughts; and there is scarce anything harder in the whole conduct of the understanding, than to get a full mastery over it.

Describe the ways suggested by Locke to gain a mastery of the understanding.

10 Give, from the *Essay on Milton*, Macaulay's arguments to show that "the great mass of men must have images."

11 Show in detail, from the essay on *Compensation*, how labor is governed by the law of compensation.

12 Describe the contest between Sohrab and Rustum.

13 Give arguments, based on the *Merchant of Venice*, either to justify or to refute the following statement:

> Bassanio is a mere matrimonial gambler, who cares neither for Antonio nor for Portia, but only for their ducats.

14 Describe, from *As You Like It*, the characters of Celia and Rosalind, bringing out the points of contrast by references to the play.

15 Describe, from *The Virginians*, *two* incidents that show the Baroness Bernstein's kindness toward Harry Warrington.

University of the State of New York

High School Department

179TH EXAMINATION

ENGLISH COMPOSITION

Tuesday, September 29, 1903—1.15 to 4.15 p. m., only

Answer questions 11–15 and five of the others but **no more.** *If more than five of the others are answered only the first five answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Write a paragraph of at least 75 words on *one* of the following topics: (*a*) Brian de Bois-Guilbert's Challenge to Ivanhoe at Rotherwood, (*b*) The Self-made Man.

2 Write a letter of at least 75 words describing *one* of the following places: New York, Albany, Syracuse, Buffalo.

3 Improve or correct the following sentences: (*a*) Though he was able and even brilliant, yet he was far from being one of the leaders of the club, with all his gifts, (*b*) Instead of trying to dig a tunnel under, the company decided to build a road around, the mountain, (*c*) Exercise is better than medicine since it is an ounce of prevention unequalled and which is worth a pound of cure, (*d*) From my window I saw the president standing on the steps and a stranger near the door was talking to the office boy, (*e*) The Umbria should have reached port yesterday and she belongs to the Cunard line.

4 Combine the following into a single well expressed sentence:

The knight stretched himself for repose on a couch. The couch was rich. The tent was provided with a couch. Gurth was faithful. He extended his hardy limbs on a bear skin. The bear skin formed a sort of carpet to the pavilion. Gurth laid himself across the opening of the tent. No one could enter without awakening him.

5 Write an introductory paragraph containing at least 75 words for an essay on the following topic: The Importance of Punctuality in Business.

6 Define unity in sentence-structure and mention *four* rules to be observed in securing it.

7 Write a reply to the following advertisement:

> WANTED—A bright assistant in the office of a large wholesale house; must be quick and accurate at figures. Address, stating age, experience, references and salary, 'Wholesale House, News Office.

8 Describe, from *Ivanhoe*, the contest between the Disinherited Knight and his three opponents on the second day of the tournament.

9 Mention *three* traits of Richard's character, illustrating each by reference to *Ivanhoe*.

10 Give an account of the reconciliation between Cedric and Ivanhoe brought about by Richard Coeur de Lion.

11–15 Write an essay of at least 250 words on *one* of the following topics, paying particular attention to introduction and conclusion, sequence of thought, paragraph structure and sentence transition [Essays on subjects other than those assigned will not be accepted]:

(*a*) Adventures of a Lost Dog [Let the dog tell the story of his adventures while he was separated from his master], (*b*) Observations from a Car Window.

University of the State of New York

High School Department

180TH EXAMINATION

ENGLISH COMPOSITION

Monday, January 25, 1904—1.15 to 4.15 p. m., only

Answer questions 11–15 and five of the others but no more. *If more than five of the others are answered only the first five answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Write a paragraph of at least 75 words on the following topic from *Ivanhoe:* The Struggle of De Bracy and the Black Knight at the Postern-gate.

2 Your parents intend to visit your aunt in a distant city. Write a letter to your aunt, mentioning the train on which she may expect them and giving particulars of their proposed visit.

3 Write the following sentences in correct form: (*a*) They returned back again to the place from which they had started, (*b*) He is thinking of going to Pittsburg, Pa. and follow the same business during the winter, (*c*) She told her friend that her cousin was ill, (*d*) Preaching on one occasion in a village chapel, a very strange question was asked him by a pious old woman, (*e*) They hung evergreen wreaths on the walls and holly was placed over the pictures.

4 Use *each* of the following pairs of words in a balanced sentence: (*a*) friend, enemy, (*b*) storm, sunshine, (*c*) words, deeds, (*d*) grief, joy, (*e*) peace, war.

5 Point out *three* violations of unity in the following and rewrite in correct form:

On the verge of a wood (it was about a mile from the town of Ashby) was an extensive meadow, bordered on one side by the forest, and which was fringed on the other by straggling oak-trees, some of which had grown to a size that was immense; they appeared very majestic too.

6 Distinguish in meaning between the sentences in *each* of the following pairs: (*a*) He thought little about it; He thought a little about it, (*b*) The girl reading received much praise; The girl's reading received much praise, (*c*) They employed a coachman and gardener; They employed a coachman and a gardener, (*d*) I only saw the boy; I saw only the boy, (*e*) If you work you will be rewarded; If you work you shall be rewarded.

7 You are employed in a book-store. Write a letter to a publisher, ordering a stock of school-books. Give necessary details.

8 Describe, from *Ivanhoe*, the contest for seats at the tournament and show how Wamba settled the trouble.

9 Narrate the circumstances under which Isaac of York is introduced into *Ivanhoe*.

10 Prepare an outline for the essay called for in questions 11–15.

11–15 Write an essay of at least 250 words on *one* of the following topics, paying particular attention to introduction and conclusion, sequence of thought, paragraph structure and sentence transition [Essays on subjects other than those assigned will not be accepted]:

(*a*) A Friend in Need [Let Ivanhoe give an account of Rebecca's kindness to him], (*b*) An Eventful Journey [Describe the journey of the Black Knight and Wamba through Sherwood forest and the attack made on them by the followers of Prince John].

Note—Students not familiar with *Ivanhoe* may write on *one* of the following: (*a*) A Useful Invention, (*b*) A Faithful Dog.

University of the State of New York

High School Department

181ST EXAMINATION

ENGLISH COMPOSITION

Wednesday, March 23, 1904 — 1.15 to 4.15 p. m., only

Answer questions 11-15 and five of the others but **no more.** *If more than five of the others are answered only the first five answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Write a paragraph of at least 75 words on the following topic from *Ivanhoe:* Lady Rowena's Interview with the Palmer.

2 A friend writes you that he is tired of school and does not intend to graduate. Write a letter advising him to stay in school, giving reasons for your advice.

3 Select from the following (*a*) *two* words marking transition between sentences, (*b*) a loose sentence, (*c*) a periodic sentence; change this periodic sentence to the loose form:

More than thirty yeomen presented themselves as competitors, several of whom were rangers and underkeepers in the royal forests. When, however, the archers understood with whom they were to be matched, upwards of twenty who were unwilling to encounter the dishonor of defeat withdrew from the contest. For in those days the skill of each celebrated marksman was well known throughout the country.

4 Write the following sentences in correct form: (*a*) I have written here a few principles that occurred to me for the benefit of young newspaper men, (*b*) They were refused entrance into, and even forcibly driven from, the house, (*c*) She was a good girl and I knew she was, and I gladly gave her a recommendation, (*d*) I saw your advertisement in the morning paper wishing for a first class stenographer, (*e*) After my work was done, she took me to a store where she bought me a new dress which I thought very beautiful.

5 Combine the following into a single well-expressed sentence:

The palmer followed the last of the train. The train entered the hall. The palmer followed modestly. He observed that the lower table scarcely afforded room for the domestics. He withdrew to a settle. The settle was placed beside one of the large chimneys.

6 Prepare an outline for an essay on *one* of the following topics from *Ivanhoe*, making sufficient subdivisions to show what matter you intend to include in the essay: (*a*) Athelstane the Unready, (*b*) The Siege of Torquilstone.

7 Expand the first head of your outline (question 6) into an introductory paragraph of at least 75 words.

. 8 Write an advertisement for a newspaper, offering a reward for an article of value that you have lost. Give necessary details.

9 Show, from *Ivanhoe*, the effect of the tournament on the plan of the conspirators.

10 Explain in detail why Gurth renounced the service of Cedric.

11–15 Write an essay of at least 250 words on *one* of the following topics, paying particular attention to introduction and conclusion, sequence of thought, paragraph structure and sentence transition [Essays on subjects other than those assigned will not be accepted]:

(*a*) A Timely Escape [Give an account of the escape of Isaac from Rotherwood and of the aid rendered him by the Palmer], (*b*) A Gentle Physician [Let Ivanhoe give an account of his first interview with Rebecca].

NOTE—Students not familiar with *Ivanhoe* may write on *one* of the following: (*a*) When my Ship Comes in, (*b*) A Winter Amusement.

University of the State of New York

High School Department

182D EXAMINATION

ENGLISH COMPOSITION

Monday, June 13, 1904—1.15 to 4.15 p. m., only

Answer questions 11-15 and five of the others but **no more.** *If more than five of the others are answered only the first five answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Write a paragraph of at least 75 words on the following topic from *Ivanhoe:* The Crowning of the Disinherited Knight.

2 Write a letter to a friend, describing a real or an imaginary journey.

3 *Flinging to Wamba some of the gold pieces which the bag contained,* Prince John passed on through the lists.

In the sentence given above substitute for the phrase *flinging to Wamba some of the gold pieces* (*a*) a clause of time, (*b*) a prepositional phrase; substitute for the clause *which the bag contained* (*a*) a participial phrase, (*b*) a prepositional phrase.

4 Write the following sentences in correct form: (*a*) He advised me to change my profession while we were walking in the garden, (*b*) Richard said to his father that he would never desert his friends, (*c*) General Howe now collected together his men and renewed the struggle, (*d*) The ambition of most of our later writers is to make money, or so it seems to me, (*e*) He failed as a lawyer and he was so timid he could not plead a case in court.

5 Combine the following into (*a*) a loose sentence, (*b*) a periodic sentence:

Gurth had been hurried along at the command of the robber. He had been dragged over the bank. He had been dragged somewhat roughly. The bank was on the left-hand side of the lane. Gurth found himself in a thicket.

6 Rewrite *each* of the following sentences so that the italicized words will have an emphatic position: (*a*) *The proud and high-spirited* knight thought he had never beheld beauty so commanding, (*b*) A leap from a dizzy battlement has no terror *to you*, (*c*) *Thou shalt die* if thou art found on English ground after the space I have allotted thee, (*d*) I have served *faithfully and long* the man who has today discarded me, (*e*) They will allow *me* to die like the houseless dog in yonder field

7 Write a letter introducing one of your friends to a prominent physician in a distant city.

8 Rewrite the following, dividing it into *two* paragraphs and into at least *four* sentences:

The lists now presented a most splendid spectacle, for the galleries were filled with the great, wealthy and beautiful, and the contrast of these dignified spectators rendered the view as gay as it was rich, while the lower space filled with the substantial yeomen of merry England formed a dark border around this brilliant circle, and as the heralds finished their proclamation, gold and silver pieces were showered on them from the galleries, and the bounty of the spectators was acknowledged by the customary shouts to which were added the applause of the yeomen and the noise of the trumpets, and when these sounds had ceased the heralds withdrew from the lists and none remained except the marshals of the field.

9 Write on *two* of the following concerning the Saxons as described in *Ivanhoe:* (*a*) dress, (*b*) household furniture, (*c*) food, (*d*) serfdom.

10 State, from *Ivanhoe*, the arguments used by Rebecca to persuade her father to take the wounded knight with them to York, and give Isaac's reply to these arguments.

11–15 Write an essay of at least 250 words on *one* of the following topics, paying particular attention to introduction and conclusion, sequence of thought, paragraph structure and sentence transition [Essays on subjects other than those assigned will not be accepted]:

(*a*) An Important Conference [Give an account of the conference of the knights in Torquilstone castle at the time of the delivery of the letter that demanded the release of Cedric and his companions], (*b*) A Yeoman's Gratitude [Let Isaac relate to Nathan Ben Israel how the kindness rendered by him and Rebecca to Diccon Bend-the-Bow was repaid under the trysting tree].

Note—Students not familiar with *Ivanhoe* may write on *one* of the following: (*a*) Why We Celebrate the Fourth of July, (*b*) The Nest in the Elm Tree.

High School Department

180TH EXAMINATION

ADVANCED ENGLISH COMPOSITION

Wednesday, January 27, 1904 — 1.15 to 4.15 p. m., only

Answer eight questions but no more. *If more than eight are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 State what is meant by circumstantial description. Show how the point of view in circumstantial description determines the selection of details. Illustrate by reference to a description of a church.

2–3 Write a paragraph of at least 100 words, describing a view from your window in such a way as to convey the impression of cold.

4 Write a description of the face of a shrewd business man, bringing out his prominent characteristics.

5–6 Report in dialogue form (not dramatic form) a conversation that you have with a merchant in regard to the business standing of the man mentioned in question 4.

7–8 Write a narrative suggested by the following: An old man who has only one leg is seen begging on the streets.

9–10 Write an abstract of the following article, containing not more than *four* well constructed paragraphs:

The world's fair to be held in St Louis in 1904, promises to eclipse in magnificence and grandeur all expositions heretofore held. It is to be known as the Louisiana Purchase Exposition, and is commemorative of the purchase of the territory of Louisiana from France, consummated on the 30th day of April, 1803.

It is most fitting that the centennial anniversary of the acquisition of Louisiana should be celebrated in some grand manner. From many points of view, the addition of this vast territory to the United States was the most important event in our whole history, as it doubled the area of the Federal Union in 1803. This territory contains the homes of millions of prosperous people — nearly one fourth the population of the United States. In this vast domain lie the principal grazing and mineral resources of our country. But far greater in importance than the acquisition of territory for its agricultural and mineral value, was the opportunity which it gave the United States for the subsequent extension of its boundaries to the Pacific coast.

The Exposition Company has secured a site that makes possible the presentation of a grander spectacle in architectural and scenic effect than even that wonderful creation in Chicago in 1893. Some idea of the extent an scope of the display can be gathered when it is stated that there will be embraced in the exposition grounds about twelve hundred acres of land. The principal structures of the exposition are located upon the west half of Forest Reserve park, a beautifully diversified piece of woodland, with lovely open vistas and a gently rolling surface, which gives full scope to architectural and artistic effects. To secure the general design the management called together 10 of the most distinguished architects in the country. The result has been the production of a general architectural plan more beautiful in its completeness than anything heretofore known.

One of the things that will differentiate the St Louis exposition from all others, will be the attention it will pay to aerial navigation. Every fair has had its captive balloon, but here, for the first time, fleets of soaring yachts will beat the air with untrammeled wings. There will be an air-ship tournament, with a prize of $100,000 for the winner, and other prizes aggregating $100,000 more for less successful competitors.

No exhibition can afford to be a simple reproduction of others that have gone before. Each must have some distinctive characteristics of its own. One distinction of the St Louis fair has just been mentioned. Another, still more fundamental, relates to the whole organic structure of the exposition. Instead of laying particular stress on finished products, the St Louis fair will especially emphasize the processes by which they are created. In other words, it will be an industrial city in actual operation.

The success of the exposition at St Louis should command the immediate attention and patriotic assistance of the people of every section of our country. This exposition should rise to the dignity of a national and international importance. Above all other things, it should be the great object-lesson of what a free people can accomplish under a republican form of government. It should teach the lesson that successful human progress can best be made while the people govern themselves through the free expression of the public will.

11 Write an outline of the article given in questions 9–10.

12 Write at least 75 words on the Use of Contrast in Narration, illustrating from some familiar story.

University of the State of New York

High School Department

182D EXAMINATION

ADVANCED ENGLISH COMPOSITION

Wednesday, June 15, 1904—1.15 to 4.15 p. m., only

Answer eight questions but no more. *If more than eight are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following as applied to narration: antecedent material, thread of action, point of view, retarding forces, character setting, climax, sequence of time.

2–3 Write a description of a deserted house in such a way as to convey the impression of loneliness.

4–5 Write a narrative connected with the house mentioned in questions 2–3, using the following details: night, a light flashing in the window, two men in a park near by.

6 Classify, as impressional or circumstantial, the description illustrated in the following paragraph, and justify your classification by detailed references to the paragraph:

The fishes slumbered in the cold, bright, glistening streams and rivers perhaps; and the birds roosted on the branches of the trees; and in their stalls and pastures beasts were quiet; and human creatures slept. But what of that, when the solemn night was watching, when it never winked, when its darkness watched no less than its light! The stately trees, the moon and shining stars, the softly stirring wind, the overshadowed lane, the broad, bright country-side, they all kept watch. There was not a blade of growing grass or corn, but watched; and the quieter it was, the more intent and fixed its watch upon him seemed to be.

7–8 Report in dialogue form (not dramatic form) a conversation between two sisters in regard to a book that they have recently read, so that prejudice and bias of mind shall be illustrated in the one and good judgment and common sense in the other.

9–10 Write an abstract of the following article, containing not more than *four* well constructed paragraphs:

The Bureau of Forestry at Washington has lately been overwhelmed by requests from the southern states for assistance in the application of practical forestry to private lands. Though the work is young, there is already a practical realization of what well-directed forestry can do for timber lands. The South is prosperous, and her forests in large measure are paying for her prosperity. Here the tree growth is among the richest and most varied in the world. And the recent movement for a national forest reserve in the southern Appalachians is, without doubt, leading to a better understanding of the need of careful forestry.

Fifty years ago the southern states contributed only one tenth of the total lumber product of the country. They now yield more than one fourth, and the proportion is rising steadily. The Civil War was followed closely by a peaceful invasion of the South. Lumbermen turned in increasing numbers from the depleted northern pineries to the hardwoods of the Appalachi mountains and the soft woods of the coastal plain. Sawmills and settlements sprang up, and growing activity in the manufacture of lumber became a prominent feature in the developments of southern industries. The result has been that the South owes much of her prosperity to the lumber industry, but the end of her timber supply is already clearly in sight.

There is no region in the United States in which the adoption of conservative methods in lumbering is more urgent than in the South, nor one in which it is a sounder business measure. The successful reproduction of the forest requires the application of comparatively simple measures. Fires that would sweep the ground bare of seedlings in the North woods, here destroy only the very young long-leaf pine. After four or five years a thick casing of needles protects the seedlings from the ordinary fires—a provision of nature that has done much to preserve the long-leaf pine from extermination.

The forests of the southern Appalachians contain perhaps the clearest examples of misuse that this country has the misfortune to present. Fences built of prime black walnut inclose many a mountain field, the value of which is but a trifle compared to that of the trees from which its fence-rails were split. Here are tops and trunks smashed and riven by careless fellings, logs left lying because of small unsoundness, young growth trampled and bruised beyond necessity. Time will make mold of the debris and will heal the scars upon standing trees. As long as a remnant of the forest remains the second crop will grow though greatly hampered by its unfavorable surroundings. But it is the composition of the second crop which is the urgent question. With the big trees gone, dogwoods and other kinds that are of little value are all that remain to shed the seed from which the new growth will spring.

There are forests, however, which are already being managed conservatively. The domain of the University of the South, near Sewanee, Tennessee, for example, possesses an educational value far out of proportion to its comparatively small area. Fire had run through the forest and a slovenly form of lumbering had been practised in it long before the University was founded. Under the supervision of the Bureau, methods have been introduced which insure the production of a second crop, while the profits of lumbering have been notably increased by enforced system and economy.

There is no reason why the practical wisdom shown in this instance should not govern the treatment of all the southern timber lands. The widespread adoption of scientific forestry will tend not merely to make timber property a permanent source of continued revenue, but to save the South from such secondary effects of thoughtless denuding as have played havoc with the water supply of streams in other parts of the country.

11 Assume that you desire work in a bank or with a publishing company and are willing to accept any position that has prospect of advancement. Write inquiring about a vacancy. Give necessary details.

12 Give the name of the best short story that you have read. Mention, with explanation, *three* reasons why you consider it the best.

High School Department

179TH EXAMINATION

RHETORIC

Tuesday, September 29, 1903—9.15 a. m. to 12.15 p. m., only

Answer questions 12–15 and six of the others but **no more.** *If more than six of the others are answered only the first six answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Develop the following topic into a paragraph of contrast, using at least 75 words: The Worker and the Shirker.

2 State the topic of the following paragraph and show how the thought contained in the first sentence is developed in (*a*) sentences 2–6, (*b*) sentences 7–11; state the rhetorical advantage of the short sentences and show why the last sentence makes a good conclusion:

But summer wanes, and autumn approaches. The songsters of the seedtime are silent at the reaping of the harvest. Other minstrels take up the strain. It is the heyday of insect life. The day is canopied with musical sound. All the songs of the spring and summer appear to be floating, softened and refined, in the upper air. The birds in a new, but less holiday suit turn their faces southward. The swallows flock and go; the bobolinks flock and go; silently and unobserved, the thrushes go. Autumn arrives, bringing finches, warblers, sparrows and kinglets from the north. Silently the procession passes. Yonder hawk, sailing peacefully away till he is lost in the horizon, is a symbol of the closing season and the departing birds.

3 Mention the rhetorical quality violated in *each* of the following sentences and correct each sentence: (*a*) We met a man who was walking along the path that leads to the rocks which are at the water's edge, (*b*) Many of the railroads of today are using electricity in running their engines as well as trolley cars, (*c*) When she was a girl she really did swim across the river and back, or so they say, (*d*) As the weather was so extremely disagreeable and as I was very tired, I did not enjoy the trip very much, (*e*) The city is situated on a river and it is very beautiful.

4 Mention and define the figure in *each* of the following: (*a*) She stood there like a slender lily, all white and gold in the summer light, (*b*) A day, an hour, an instant may prove fatal, (*c*) The press is becoming more powerful than the pulpit, (*d*) An upright minister asks what recommends a man; a corrupt minister asks who recommends him, (*e*) Nature holds her breath to listen.

5 Rewrite correctly the following letter:

Syracuse, N. Y.
June 23, '03

My dear Mrs Smith:

I return the book that you loaned me last week with many thanks. I only intended to keep it two or three days but being ill it was impossible for me to read it sooner. I was not only interested in the book but it was so fascinating and I was sorry when I finished it. I can not tell you how much I enjoyed it and how much I thank you for your kindness when I was ill in sending it to me.

Hoping that I will be able to return the favor
Sincerely
Jennie S. Patterson

6 Rewrite the following in plain language:

How different faces are in this particular! Some of them speak not. They are books in which not a line is written, save perhaps a date. Others are great family Bibles, with both the Old and the New Testament written in them. Others are Mother Goose and nursery tales; others, bad tragedies and others sweet love songs.

7 Write a suitable topic sentence for a paragraph of illustration and develop the sentence into this type of paragraph.

8 In the following stanzas mark the scansion and state the prevailing foot and meter; select from them an example of masculine rime, feminine rime, alliteration:

a Softly sweet, in Lydian measures,
Soon he sooth'd his soul to pleasures.

b Twilight and evening bell,
And after that the dark!
And may there be no sadness of farewell
When I embark.

9 Write a description of the scene on the wharf as viewed in "Sights from a Steeple."

10 Describe, from "Lady Eleanore's Mantle," an incident showing Lady Eleanore's unfeeling nature.

11 Give an account of the rumors with reference to the way in which Esther Dudley spent her time in the Province House.

12–15 Write an essay of at least 250 words on *one* of the following topics [Essays on subjects other than those assigned will not be accepted]: (*a*) A Coal Famine, (*b*) The Power of the Press.

High School Department

180TH EXAMINATION

RHETORIC

Tuesday, January 26, 1904—9.15 a. m. to 12.15 p. m., only

Answer questions 12–15 and six of the others but **no more.** *If more than six of the others are answered only the first six answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Mention *three* methods of developing the paragraph from the topic sentence. Write a topic sentence on Great Men, and develop from this a paragraph of at least 50 words, illustrating *one* of the methods mentioned. State the method used.

2 In the following paragraph state the topic sentence, show how transition is secured between the first and the second sentence and between the third and the fourth sentence without the use of connective words, point out an example of antithesis and give the characteristic of the last sentence that makes it a good conclusion:

> The deepest passion of human life is the desire for happiness. The souls of men are possessed by various passions—fame, wealth, influence, friendship—but all these feed the flame of this sacred passion for happiness. In the wigwam of the savage and in the palace of the king the search of men and women is for happiness. They strive and sacrifice, plan and execute, form friendships and break them, marry and are given in marriage; they even lie and steal and murder under the impression that these things will result for them in happiness. The overmastering, never completed search of all men is for happiness.

3 Mention the rhetorical quality violated in *each* of the following sentences and correct each sentence: (*a*) Ask him if he is in the city to let me know, (*b*) The butler is wonderfully desirous of pleasing me; or at least he seems so, (*c*) Being a merchant, the lawyer assumed that his credit was good, (*d*) The value of his researches is now universally acknowledged by all historians, (*e*) I have a friend who knows some one who used to attend your church.

4 Mention the figure of speech in *each* of the following and show the points of comparison: (*a*) A word is a winged seed; none can tell, when once it has gone forth, what its harvest may be, (*b*) Those who make the least noise do the most work; an engine that expends all its steam in whistling has nothing left with which to turn wheels, (*c*) He was crowned king in the realm of intellect.

5 Show by original sentences the difference between (*a*) loose sentence and periodic sentence, (*b*) balanced sentence and parallel construction.

6 State which of the sentences in *each* of the following pairs is preferable, and give in detail the reason for your choice:

(*a*) I worked faithfully for my kind employer who one morning surprised me by making me a partner in the business; I worked faithfully for my kind employer and one morning he surprised me by making me a partner in the business, (*b*) I replied in a few words (for I hate long speeches) and withdrew as soon as possible; Hating long speeches, I replied in a few words and withdrew as soon as possible, (*c*) In the car were four men who were going to the park where they were to meet friends; In the car were four men who were going to the park to meet friends, (*d*) On our way home he proposed a walk around the block and I consented; On our way home he proposed a walk around the block to which I consented, (*e*) When the wind stopped blowing the ground under the tree was covered with nuts; The wind stopped blowing and the ground under the tree was covered with nuts.

7 Rewrite the following in plain language:

Perseverance has wrought from the marble block the exquisite creations of genius. It has put in motion millions of spindles and winged as many flying shuttles; it has harnessed thousands of iron steeds to as many freighted cars and set them flying from town to town and nation to nation, tunneled mountains of granite, and annihilated space with the lightning's speed. Perseverance has whitened the waters of the world with the sails of a hundred nations, navigated every sea and explored every land.

8 In the following stanzas mark the scansion and state the prevailing foot and meter and the position of the cesuras; select an example of end-stopt verse, feminine rime:

a I heard the bells on Christmas day
Their old, familiar carols play,
And wild and sweet
The words repeat
Of peace on earth, good-will to men!

b Work—for some good, be it ever so slowly;
Cherish some flower, be it ever so lowly;
Labor!—all labor is noble and holy.

9 Show, from the "Prophetic Pictures," how the prophecy of the painter was fulfilled.

10 Give an account of the wedding described in the "Minister's Black Veil."

11 Describe Governor Hancock's attitude toward old Esther Dudley.

12–15 Write an essay of at least 250 words on *one* of the following topics [Essays on subjects other than those assigned will not be accepted]: (*a*) A Mysterious Pageant [Let Sir William Howe give an account of the procession summoned by the funeral march], (*b*) A Disastrous Visit [Show how the smallpox was brought to Boston and spread among the people].

NOTE—Students not familiar with *Twice-told Tales* may substitute *one* of the following: (*a*) A Glimpse into the Next Century, (*b*) Things that Cost Nothing.

University of the State of New York

High School Department

181ST EXAMINATION

RHETORIC

Thursday, March 24, 1904—9.15 a. m. to 12.15 p. m., only

***Answer questions 12–15 and six of the others but* no more.** *If more than six of the others are answered only the first six answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Develop the following topic sentence into a paragraph of at least 75 words by explanation or illustration: Not all heroes are found on the battle-field.

2 Give in not more than 10 words the topic of the following paragraph, state the relation of the second and of the third sentence to the main thought of the paragraph, select an example of parallel construction and mention one device to secure emphasis:

Only the man who has courage enough to see and to appreciate the full danger of his course, who is so sensitive that a real struggle is necessary to overcome his predisposition to inaction—only such a man is courageous in the highest sense, as he walks forward to meet fate or to bear the burden of some martyrdom. It is not courageous to oppose public opinion if the regard of men means nothing to you. It is not courageous to bear pain if you have little nerve sensibility. It is not courageous to push into the darkness if life is so distasteful that you do not love the light. Courage is measured more by what you overcome than by what you do.

3 Mention the rhetorical quality violated in *each* of the following sentences and correct each sentence: (*a*) I found some boxes full of stones and I broke them up, (*b*) You have my grateful thanks and most sincere gratitude for this favor, (*c*) The river that flows at the foot of the garden that is behind the house is overhung by the tall elms growing on its banks, (*d*) Mrs Brown who for many years was an invalid, like her sister, died of typhoid fever, (*e*) Dr Marvin lived in this house and he was one of the most popular preachers of his time.

4 State the figure of speech found in *each* of the following and rewrite each sentence, expressing the thought without using figurative language: (*a*) Experience is the most effective schoolmaster, although the school fees are somewhat heavy, (*b*) They have employed a great many new hands at the mills this week, (*c*) There are more butterflies than bees in fashionable society, (*d*) A steady purpose is like a river that gathers force by flowing on, (*e*) Success is the child of two very plain parents, punctuality and accuracy.

5 Explain what is meant by transition. Mention *two* different means of securing transition from sentence to sentence, other than by the use of a connective word, and write original sentences illustrating each.

6 Show how unity and continuity (sequence) are violated in the following paragraph and rewrite in better form, making two or more paragraphs if necessary:

The marriage of Miss Louise Burrell and Dr George Wright of this city, took place this morning at the First Reformed church. Miss Burrell, one of the wealthiest women in the state, recently came into prominent notice by giving to the city her land on 10th st. This land has long been desired for the site of a free public library. The ceremony was performed by the Rev. James Lee, uncle of the bride. Dr and Mrs Wright left this afternoon for an extended European trip. On their return they will take up their residence in this city. Miss Burrell is the daughter of the late Mr and Mrs Samuel Burrell.

7 Trace the points of comparison in the following simile:

Like leaves on trees, the race of man is found,
Now green in youth, now withering on the ground,
Another race the following spring supplies;
They fall successive, and successive rise;
So generations in their course decay;
So flourish these, when those are past away.

8 Distinguish between (*a*) trochaic tetrameter and dactylic dimeter, (*b*) masculine rime and feminine rime, (*c*) ode and sonnet.

9 Give an account of the probable effect on the life of David Swan if he had been awakened by the old merchant.

10 Relate the circumstances under which Dominicus Pike first heard of Mr Higginbotham's murder.

11 Give an account of Lady Eleanore's arrival at the Province House.

12–15 Write an essay of at least 250 words on *one* of the following topics [Essays on subjects other than those assigned will not be accepted]:

(*a*) The Surrender of Esther Dudley's Trust [Let Governor Hancock describe the scene in which he obtains from Esther Dudley the key of the Province House], (*b*) A Thunderstorm [Give the author's account of the storm as viewed in "Sights from a Steeple"].

NOTE—Students not familiar with *Twice-told Tales* may substitute *one* of the following: (*a*) Soliloquy of a School Clock, (*b*) The True Gentleman.

High School Department

182D EXAMINATION

RHETORIC

Tuesday, June 14, 1904—9.15 a. m. to 12.15 p. m., only

Answer questions 12-15 and six of the others but **no more.** *If more than six of the others are answered only the first six answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Develop the following topic sentence into a paragraph of at least 75 words, using the method of cause and effect: A severe thunder-storm suddenly arose.

2 In the following paragraph state the topic sentence, show how the second sentence explains the thought of the first sentence, state the way in which transition is secured between the second and the third sentence, mention the words in the fourth sentence on which the fifth sentence depends and show why the last sentence makes a good conclusion:

Idleness is the sepulchre of a living man. A man whose will refuses to direct the vitality within him into regular channels of labor is as good as dead and buried. Of what use is such a man in the world, to himself or others? If he will not work, he is a burden upon society, even if he prey upon a pile of inherited wealth. That wealth, if he were out of the way, would pass into better hands; and the world has need of it for the workers. No man has a right to be idle if he can get work to do, simply because he can not be an idle man without injury to himself and to society. He destroys his own happiness, buries his powers of usefulness, and furnishes to the world a pestilent example.

3 Criticize and correct the following: (*a*) I have a new story and I like to read and I shall stay at home this evening, (*b*) The women in this country are noted for their industry but they are very indolent in that country, (*c*) In telling stories about different birds he shows his careful observance of their habits, (*d*) He intended to grapple with his foe adversity, and out of its ruins to rear the temple of triumphant success, (*e*) I was in the midst of a field of difficulty with only the hand of perseverance and the rules of art to guide me.

4 Write original sentences illustrating the following: periodic sentence, balanced sentence, alliteration, metonymy.

5 State what quality of style is violated by *each* of the following, illustrate these violations by original sentences and rewrite the sentences in correct form: (*a*) squinting construction, (*b*) tautology, (*c*) a chain construction of relative clauses.

6 Point out and define *four* different figures of speech in the following paragraph:

It is the black curtain of destiny which drops down before our brightest dreams. How often the phantoms of joy regale us, and dance before us, golden-winged, angel-faced, heart-warming, and make an Elysium in which the dreaming soul bathes, and feels translated to another existence; and then—sudden as night, or a cloud—a word, a step, a thought, a memory will chase them away, like scared deer vanishing over a gray horizon of moorland.

7 Rearrange the following sentences and insert, giving a reason in each case, at least *three* transitional words or phrases:

In that same village there lived many years since a simple good-natured man whose name was Rip Van Winkle. He inherited but little of the martial spirit of his ancestors. He was a descendant of the Van Winkles who figured so gallantly in the chivalrous days of Peter Stuyvesant. I have observed that he was a simple good-natured man; he was a kind neighbor and an obedient henpecked husband. To the latter circumstance might be owing that meekness of spirit which gained him such universal popularity. A scolding wife may, in some respects, be considered a blessing. Rip Van Winkle was thrice blessed. Those men are most apt to be obsequious and conciliating abroad who are under the discipline of shrews at home.

8 Give the name and explain the construction of the following stanza:

They sat them down upon the yellow sand,
Between the sun and moon upon the shore;
And sweet it was to dream of Fatherland,
Of child, and wife, and slave: but evermore
Most weary seem'd the sea, weary the oar,
Weary the wandering fields of barren foam.
Then some one said, "We will return no more;"
And all at once they sang, "Our island home
Is far beyond the wave; we will no longer roam."

9 Give, from "Lady Eleanore's Mantle," an account of the last meeting between Lady Eleanore and Jervase Helwyse.

10 Show how humor is brought out in "Mr Higginbotham's Catastrophe."

11 Describe old Esther Dudley, making prominent at least *one* important trait of her character.

12–15 Write an essay of at least 250 words on *one* of the following topics [Essays on subjects other than those assigned will not be accepted]:

(*a*) The Self-denial of Mr Hooper [Let Mr Hooper tell how the wearing of the black veil virtually deprived him of all human intercourse], (*b*) An Ominous Visit [Describe the visit of Elinor and Walter to the painter's studio after the completion of the portraits].

NOTE—Students not familiar with *Twice-told Tales* may substitute *one* of the following: (*a*) War between Japan and Russia, (*b*) An Ideal Home.

High School Department

180TH EXAMINATION

HISTORY OF LITERATURE

Friday, January 29, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more;** *of these 10 questions at least five must be from part 1 in order to receive credit for English literature, and at least five from part 2 in order to receive credit for American literature. Answer 10 questions in all cases, whether credit is desired for either one of the two parts or for both parts. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

English Literature

Part 1

1 Show how the early history of England affected literature before the time of Chaucer.

2 Give the plan of the *Canterbury Tales* and mention *three* reasons for the importance of this poem in literature.

3 Trace the development of the drama from the early miracle plays to the Elizabethan Age.

4 Distinguish the works of Shakspere from those of his contemporary dramatists by giving *three* points of difference. Illustrate by references to his works.

5 Give an outline of the literary history of England during the 17th century.

6 Arrange in chronologic order *three* important satires by different authors. Give the author and purpose of each.

7 Mention *five* prominent novelists of the 18th century and give the title of a work of each.

8 Mention the school of writers to which Byron belongs. Give the general characteristics and mention *three* other representative writers of this school.

9 Give an account of the *Idylls of the King*, touching on (*a*) author, (*b*) sources, (*c*) general plan, (*d*) literary merits.

10 Write on *one* of the following topics: (*a*) Early Periodicals, (*b*) The Lake School Poets, (*c*) The Oxford Movement.

American Literature

Part 2

11 Give *three* conclusions about the thought and life of Colonial times that may be drawn from Colonial literature. Explain or defend these conclusions.

12 Give an account of the writings of William Bradford and Anne Bradstreet, and show how their writings differ from similar writings of the 19th century.

13 Explain in detail why the Revolutionary period was unfavorable to the production of literature.

14 Show why England was interested in Irving and his works.

15 Mention *three* poems written to commemorate some special occasion. State the occasion for which each poem was written and give a sketch of *one* of them.

16 Give *three* reasons to show why Bryant's writings, so popular during his life, are comparatively little read today.

17 Mention a journalist, a novelist and a poet who advocated the cause of abolition. Show how each contributed to this cause.

18 State the class of works for which *each* of the following is noted and give a sketch of a work by *one* of them: Henry David Thoreau, Francis Parkman, Helen Hunt Jackson.

19 Show how satire, pathos and humor are brought out in the writings of Holmes and illustrate by references to his works.

20 Select 10 of the following authors and mention a work by each one selected: Jonathan Edwards, William Ellery Channing, Josiah Gilbert Holland, Edward Everett Hale, Louisa May Alcott, Thomas Buchanan Read, Ralph Waldo Emerson, Donald Grant Mitchell, John Hay, William Dean Howells, Henry Van Dyke, S. Weir Mitchell, Captain Charles King, Mary Mapes Dodge, Kate Douglas Wiggin.

University of the State of New York

High School Department

182D EXAMINATION

HISTORY OF LITERATURE

Friday, June 17, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more**; *of these 10 questions at least five must be from part 1 in order to receive credit for English literature, and at least five from part 2 in order to receive credit for American literature. Answer 10 questions in all cases, whether credit is desired for either one of the two parts or for both parts. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

English Literature

Part 1

1 Write on *one* of the following: (*a*) Beowulf, (*b*) literary work of King Alfred, (*c*) early romances and ballads.

2 Explain the meaning of *Renaissance* in literature and show the influence of the Renaissance on the Elizabethan literature.

3 Mention a work by *each* of the following and state approximately the period or age to which the author belongs: Burke, Dante Gabriel Rossetti, Bede, Carlyle, Sir Thomas More.

4 Give an account of *three* of Milton's earlier poems. Give a sketch of *one* of them.

5 Show how the age in which Dryden lived influenced his life and writings. Compare Dryden's earlier manner in writing drama with his later manner.

6 Contrast the poetry of Pope with that of Burns, mentioning *three* prominent differences. Illustrate these differences by references to their works.

7 Mention *three* new types of literature that came into prominence in the 18th century. Give a representative writer, with an important work, of each type.

8 Give an account of Scott as (*a*) a poet, (*b*) a prose writer. Mention *two* of his poetical works and *three* of his prose works. Who supplanted Scott as the most popular British poet?

9 Give the characteristics of the writings of *two* of the following, mentioning important works by each: Browning, Kipling, Stevenson, Carlyle.

10 Select 10 of the following works and mention the author of each one selected: *Newcomes, Intimations of Immortality,*

Romola, Lives of the Poets, The Seasons, Crossing the Bar, Christabel, English Bards and Scotch Reviewers, Cymbeline, Advancement of Learning, Eve of St Agnes, Battle of the Books, Legende of Goode Women, Lays of Ancient Rome, Confessions of an Opium Eater.

American Literature

Part 2 11 State *two* particulars in which the character of the colonists affected colonial literature, discussing each with some fulness.

12 Contrast the life of Jonathan Edwards with the life of Benjamin Franklin.

13 Mention works of the Revolutionary period (*a*) that show the patriotic spirit of the day, (*b*) that deal with the new problems of the day. Give reasons for your selection.

14 Mention *three* characteristics of Poe's writings and account for his popularity as a writer.

15 Mention *three* writers of dialect, each representing a different section of the country. State in each case the particular section represented and give the title of a work of each.

16 Mention *three* noted American writers whose lives and works are associated with New York State. Write a sketch of the life of *one* of them.

17 Write a sketch of a leading character in *one* of the following: *Courtship of Miles Standish, House of the Seven Gables, Lars.*

18 Mention the names of *three* great orators and give a sketch of the life of *one* of them.

19 Give the real names of *five* of the authors designated in the following list: Diedrich Knickerbocker, Hosea Biglow, H. H., Mark Twain, Artemus Ward, Charles Egbert Craddock, Ik Marvel, Fanny Fern, Marion Harland, Gail Hamilton. Give the title of a work of each one selected.

20 Write on *one* of the following: (*a*) The Brook Farm experiment, (*b*) The literature of the South before the Civil War as compared with its literature since the Civil War, (*c*) American humorists.

High School Department

180TH EXAMINATION

COURSE IN ENGLISH READING

Friday, January 29, 1904—1.15 to 4.15 p. m., only

Answer eight questions but **no more.** *Four questions must be chosen from each division. Each answer under the first division will be considered a short (20 minute) theme and will be graded for composition. If more than eight questions are answered only the first eight answers will be considered. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

First division 1 Relate, from the *Merchant of Venice*, the story of the Prince of Morocco.

2 Compare the scene in the castle at the time of Sir Launfal's return with the scene outside the castle.

3 Give, from *Ivanhoe*, an account of the archery contest at the conclusion of the tournament.

4 Describe Silas Marner's return to Lantern Yard.

5 Give, from the *Essay on Burns*, Carlyle's discussion of the sincerity found in the writings of Burns.

6 Relate the experiences of the ancient mariner and his shipmates while the ship was becalmed.

7 Describe, from the *Princess*, the scene in which the letters were delivered to the Princess Ida.

8 Contrast the domestic life of Sir Roger de Coverley with that of the Vicar of Wakefield.

Second division 9

If't be so,
For Banquo's issue have I fil'd my mind;
For them the gracious Duncan have I murther'd;
Put rancours in the vessel of my peace
Only for them; and *mine eternal jewel*
Given to the common enemy of man,
To make them kings, the seed of Banquo kings!

State by whom and under what circumstances the above quotation was uttered. Explain the reference in *If't be so.* Give the meaning of *put rancours in the vessel of my peace, mine eternal jewel.*

10 Select *three* of the following quotations from *Il penseroso*, and give, by quotation or otherwise, the part of *L'allegro* to which each one selected corresponds:

a But, hail! thou Goddess sage and holy!
Hail, divinest Melancholy!

b Come, pensive Nun, devout and pure,
Sober, steadfast, and demure.

c Come; but keep thy wonted state,
With even step, and musing gait.

d And, missing thee, I walk unseen
On the dry smooth-shaven green,
To behold the wandering moon,
Riding near her highest noon.

e These pleasures, Melancholy, give;
And I with thee will choose to live.

11 Answer *either* the questions pertaining to *a or* those pertaining to *b:*

a *But* this isle,
The greatest and the best of all the main,
He quarters to his blue-haired deities;
And all this *tract* that fronts the falling sun
A *noble peer* of *mickle trust* and power
Has in his charge.—*Comus*

Explain the reference in *he*, *tract*, *noble peer*. Give the meaning of *mickle trust*. Show by reference to the context the force of *but*.

b He must not float upon his watery bier
Unwept, and *welter* to the parching wind,
Without the *meed* of some melodious tear.
  Begin, then, *Sisters of the Sacred Well*
That from beneath the seat of Jove doth spring;
Begin, and somewhat loudly sweep the string.—*Lycidas*

Explain in full the reference in the first line of the above quotation. Give the meaning of *welter*, *meed*. Explain the mythologic reference in *Sisters of the Sacred Well*.

12 Give, from *Lycidas*, the substance of the author's statements regarding fame, covering (*a*) the lament of the poet, (*b*) the reply of Phoebus.

13 Give the substance of the Boston Port Bill and of the act which changed the charter of Massachusetts, stating in detail from the *Speech on Conciliation with America*, Burke's reasons for wishing to repeal these bills.

14 Give, from the *Essay on Milton*, Macaulay's answer to the question: "Had Charles the First broken the fundamental laws of England?"

15 Give, from the *Essay on Addison*, Macaulay's explanation of the following statement, showing how the humor of Addison differed from the humor of Swift and from that of Voltaire:

The three most eminent masters of the art of ridicule, during the eighteenth century, were, we conceive, Addison, Swift and Voltaire. Which of the three had the greatest power of moving laughter may be questioned. But each of them, within his own domain, was supreme.

High School Department

182D EXAMINATION

COURSE IN ENGLISH READING

Friday, June 17, 1904 — 1.15 to 4.15 p. m., only

Answer eight questions but **no more.** *Four questions must be chosen from each division. Each answer under the first division will be considered a short (20 minute) theme and will be graded for composition. If more than eight questions are answered only the first eight answers will be considered. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

First division 1 Give, from *Julius Caesar*, an account of the conference of Antony, Octavius and Lepidus immediately after Caesar's funeral.

2 Give, from *Sir Roger de Coverley Papers*, a sketch of what Sir Roger says in regard to town and country manners.

3 Describe, from the *Vicar of Wakefield*, the home life of the Primrose family after they met with the change in their fortunes.

4 Describe the circumstances under which the ancient mariner first told his tale and show how he was affected whenever he was impelled to repeat the tale.

5 Describe the scene in which Ivanhoe came to the rescue of Rebecca at Templestowe.

6 Give, from the *Essay on Burns*, Carlyle's comparison of Burns with the poets and wise men who had the two indispensable things that Burns lacked.

7 Describe, from *Silas Marner*, the feelings and actions of Godfrey Cass when he learned that Eppie's mother had come to Raveloe.

8 Contrast Portia's treatment of Bassanio with Ida's treatment of the Prince.

Second division 9 State by whom and under what circumstances *three* of the following were uttered and explain the meaning of each quotation selected (*Macbeth*):

a And oftentimes, to win us to our harm,
The instruments of darkness tell us truths
Win us with honest trifles, to betray's
In deepest consequence.

b We have scotch'd the snake, not kill'd it:
She'll close and be herself, whilst our poor malice
Remains in danger of her former tooth.

c For from this instant
There's nothing serious in mortality:
All is but toys: renown and grace is dead;
The wine of life is drawn, and the mere lees
Is left this vault to brag of.

d Macbeth
Is ripe for shaking, and the powers above
Put on their instruments.

10 Answer *either* the questions pertaining to *a or* those pertaining to *b:*

a And ever, against *eating cares*,
Lap me in soft *Lydian airs*,
Married to immortal verse,
Such as the *meeting* soul may pierce,
In notes with many a *winding bout*
Of *linked sweetness* long drawn out. —*L'allegro*

Explain the meaning of *Lydian airs*, *winding bout*, *linked sweetness*. Why is the epithet *meeting* applied to soul? Explain the figure of speech in *eating cares*.

b Or let my lamp, at midnight hour,
Be seen in some high lonely tower,
Where I may oft *outwatch the Bear*,
With thrice great *Hermes*, or *unsphere*
The spirit of *Plato*. — *Il penseroso*

Explain in full the meaning of *outwatch the Bear*, *unsphere the spirit*. Give the reference in *Hermes*, *Plato*. Point out an example of alliteration.

11 Explain the mythologic allusions in the following from *Comus:*

a And you a statue, or as Daphne was,
Root-bound, that fled Apollo.

b All amidst the gardens fair
Of Hesperus, and his daughters three
That sing about the golden tree.

c That moly
That Hermes once to wise Ulysses gave.

12 Express the meaning of the following in plain prose:

Fame is the spur that the clear spirit doth raise
(That last infirmity of noble mind)
To scorn delights and live laborious days;
But the fair guerdon when we hope to find,
And think to burst out into sudden blaze,
Comes the blind Fury with the abhorred shears,
And slits the thin-spun life.—*Lycidas*

13 Write a paragraph of at least 75 words, stating more fully the thought of the following quotation from the *Speech on Conciliation with America:*

My hold of the colonies is in the close affection which grows from common names, from kindred blood, from similar privileges, and equal protection.

14 In referring to the ambition of Oliver Cromwell, Macaulay says, in his *Essay on Milton*, "He never seems to have coveted despotic power."

Give Macaulay's justification of this statement.

15 Give, from the *Essay on Addison*, an account of the *Tatler* and the *Spectator*, touching on (*a*) origin, (*b*) subject matter, (*c*) contributors, (*d*) reasons for termination.

High School Department

179TH EXAMINATION

ENGLISH SELECTIONS

Wednesday, September 30, 1903 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Contrast, from the *Prologue*, the frere with the "povre persoun of a toun."

2 Mention the actors and describe the revels referred to in the following quotation from the *Tempest:*

> Our revels now are ended. These our actors,
> As I foretold you, were all spirits and
> Are melted into air, into thin air.

3 Give, from *Alexander's Feast*, an account of what Dryden says in regard to *each* of the following: Timotheus, Jove, Bacchus, Darius, St Cecilia.

4 Explain why Protesilaus reproves Laodamia and give the substance of his words of reproval.

5 Give the context of the following quotation from *Lines composed above Tintern Abbey*, stating in detail the reference in *this* and in *other gifts:*

> Not for *this*
> Faint I, nor mourn nor murmur; *other gifts*
> Have followed; for such loss, I would believe,
> Abundant recompense.

6 Describe the dungeon of Chillon and give an account of the lives of the three brothers while they were together there.

7 Relate, from the *Coming of Arthur*, the story told by Bedivere concerning Arthur's birth.

8 Sketch the adventures of Lancelot in his quest for the holy grail.

9 State why the lost leader left his party and describe the feelings of his followers toward him both before and after he left them.

10 Show how Theocrite's ambition and Gabriel's humility are contrasted in *The Boy and the Angel.*

11 Give, from Bacon's essay on *Travel*, *two* precautions to be taken by one about to travel, *two* rules to be observed while traveling and *one* rule to be observed after returning.

12 Explain the meaning of the following quotation from *Conciliation with the Colonies*, showing in what respect the statement was true:

In Boston they have been enabled, by successful chicane, wholly to evade many parts of one of your capital penal constitutions.

13 Give, from *Heroes and Hero Worship*, an account of the *Koran*, touching on (*a*) circumstances under which it was written, (*b*) the regard of the Mahometans for it, (*c*) its merits.

14 Give a sketch of the life of Macaulay.

15 Explain the references in *two* of the following:

a Next whereunto there standes a stately place,
Where oft I gayned giftes and goodly grace
Of that great lord, which therein wont to dwell,
Whose want too well now feels my freendles case.

b Thy case, dear friend,
Shall be my precedent; as thou got'st Milan,
I'll come by Naples.

c May thy queen be one with thee,
And all this Order of thy Table Round
Fulfil the boundless purpose of their king.

d So is Pheidippides happy forever,—the noble strong man
Who could race like a god, bear the face of a god, whom a god loved so well.

High School Department

180TH EXAMINATION

ENGLISH SELECTIONS

Wednesday, January 27, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Discuss, with illustrations, the following as shown in the *Prologue:* (*a*) humor, (*b*) descriptions.

2 Explain the meaning of the italicized words in the following from the *Prothalamion:*

> And each one had a little wicker basket,
> Made of fine twigs, *entrayled* curiously,
> In which they gathered flowers to fill their *flasket*,
> And with fine fingers *cropt* full *feateously*
> The tender stalks *on hye*.

3 Describe, from the *Tempest*, Prospero's treatment of Ferdinand after he was cast on the island, stating its purpose and result.

4 "What passion can not music raise and quell?"
Show in detail, from the *Song for Saint Cecilia's Day*, how Dryden answers the above question.

5 Give, with explanation, *two* historical references and *one* mythologic reference found in *Alexander's Feast.*

6 Give an outline of *Lines Composed above Tintern Abbey.*

7 Give the context and explain the meaning of the following quotation from the *Prisoner of Chillon:*

> And the whole earth would henceforth be
> A wider prison unto me.

8 Give, from the *Coming of Arthur*, an account of the battle in which Arthur overcame the barons and kings who questioned his right to the throne.

9 Describe Arthur's attitude in reference to the holy grail, bringing out the lesson taught by the poem.

10 Explain the allusion in the following quotation from *The Lost Leader*, giving the names of the poets whom Browning mentions in the preceding lines:

> He alone breaks from the van and the freemen,
> —He alone sinks to the rear and the slaves!

11 Describe the three kinds of praise depicted in *The Boy and the Angel*, and state, with reason, which was the most acceptable.

12 Describe the scene on the French ships just before Hervé Riel came to the rescue.

13 Give a sketch of the life of Burke.

14 In his essay on *Studies* Bacon says, "There is no stand or impediment in the wit but may be wrought out by fit studies, like as diseases of the body may have appropriate exercises."

Explain what Bacon means by the above statement and mention the illustrations given by him to prove his position.

15 Give an account of what Macaulay says in regard to the moral qualities of Bacon.

High School Department

182D EXAMINATION

ENGLISH SELECTIONS

Wednesday, June 15, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Write in modern English *three* of the following from the *Prologue:*

a Of yeddinges he bar utterly the prys.
b Sowninge alway thencrees of his winning.
c Of hem that yaf him wher-with to scoleye.
d He wolde thresshe, and ther-to dyke and delve.
e Ther nas no dore that he nolde heve of harre.

2 Mention, from the *Tempest*, *three* traits of Miranda's character, illustrating each by reference to the play.

3 Scott says of Dryden:

> He first showed that the English language was capable of uniting smoothness and strength. He knew how to choose the flowing and sonorous words; to vary the pauses and adjust the accents; to diversify the cadence and yet preserve the smoothness of the meter.

Show by references or quotations how the *Song for Saint Cecilia's Day* is an illustration of the above statement.

4 Mention, from *Alexander's Feast*, *three* of the subjects concerning which Timotheus sang and show how each influenced Alexander.

5 Describe the interview between Laodamia and Protesilaus.

6 State the thought to which *therefore* refers in *each* of the following quotations from *Lines Composed above Tintern Abbey:*

a *Therefore* am I still
A lover of the meadows and the woods
And mountains, and of all that we behold
From this green earth.

b *Therefore* let the moon
Shine on thee in thy solitary walk;
And let the misty mountain-winds be free
To blow against thee.

7 Describe the state of mind of the prisoner of Chillon when men came to set him free. Account for his feelings at this time.

8 Write a description of the god Pan and give the substance of the message that he sent to Athens by Pheidippides.

9 State the circumstances under which the following quotation from *The Boy and the Angel* was uttered and show in what respect it was true:

> Vainly I left my angel-sphere,
> Vain was thy dream of many a year.

10 Describe the heroism of Hervé Riel and state the reward received by him.

11 State the connection of *each* of the following with the story of the *Coming of Arthur:* Leodogran, Merlin, Lancelot, Bellicent, Guinevere.

12 Mention, from Bacon's essay on *Truth*, the three things which truth teaches to be the sovereign good of human nature.

13 How does Burke show in his *Conciliation with the Colonies* that the descent and remoteness of the American people were *two* chief causes of their love of freedom?

14 Give, from *Heroes and Hero Worship*, an account of Thor's experiences in Utgard and explain their allegoric significance.

15 Give, from the *Essay on Bacon*, references to show the truth of the following quotation:

> A close friendship was soon formed between them—a friendship destined to have a dark, a mournful, a shameful end.

High School Department

179TH EXAMINATION

AMERICAN SELECTIONS

Tuesday, September 29, 1903—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Describe, from the *Last of the Mohicans*, the cavern at Glenn's and explain why Heyward and his party sought refuge there.

2 Sketch the event in the *House of the Seven Gables* that may be considered the climax of the story. State why this event may be considered the climax.

3 Mention *three* important thoughts from *Thanatopsis* and give the substance of what Bryant says concerning *one* of them.

4 Give, from the *Present Crisis*, Lowell's idea of heroism and illustrate by mentioning *two* examples from this poem.

5 Give, from *My Garden Acquaintance*, the substance of what Lowell says in regard to the following statement:

There is a common notion that animals are better meteorologists than men.

6 Explain the reference in the following quotation from *A Glance Behind the Curtain:*

> The fate of England and of freedom once
> Seemed wavering in the heart of one plain man.
> One step of his, and the great dial-hand,
> That marks the destined progress of the world
> In the eternal round from wisdom on
> To higher wisdom, had been made to pause
> A hundred years.

7 Describe *three* of the introductions to the various scenes in the *Hanging of the Crane*, mentioning the scene introduced by each one selected.

8 Give a sketch of the life of Bayard Taylor.

9 Give, from *Lars*, an account of the friendship between Brita and Ruth.

10 Give, from *Reveries of a Bachelor*, a sketch of the author's school-days.

11 Describe Irving's life with the family of Doña Antonia at the palace of King Chico, as depicted in the *Alhambra*.

12 Give, from the essay on *Nature*, Emerson's justification of the following statement:

The hunger for wealth, which reduces the planet to a garden, fools the eager pursuer.

13 Mention a prominent trait of Franklin's character and describe, from the *Autobiography*, an incident illustrating this trait.

14 Give, from the *Farewell Address*, an account of what Washington says in regard to his endeavor to adhere to the principles set forth in this address.

15 Show the connection of *each* of the following titles with the work to which it applies: (*a*) *Last of the Mohicans*, (*b*) *Thanatopsis*, (*c*) *A Glance Behind the Curtain*, (*d*) *Commemoration Ode*, (*e*) *Hanging of the Crane*.

University of the State of New York

High School Department

180TH EXAMINATION

AMERICAN SELECTIONS

Tuesday, January 26, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Mention *three* leading traits of the character of Uncas, illustrating each by reference to the *Last of the Mohicans.*

2 Give, from the *House of the Seven Gables*, an account of Phoebe's first meeting with Holgrave.

3 Prove, either by quotations from *Thanatopsis* or by paraphrase, the truth of the following quotation with reference to Bryant:

> In nature he loved best the solemn and sublime aspects. His reflections are always serious and often sad. The burden of his song is the transitoriness of life.

4 Show, from the *Present Crisis*, the effect on mankind of (*a*) a deed done for freedom, (*b*) the triumph of evil. Give Lowell's reason for believing that these effects are felt.

5 Give, from *My Garden Acquaintance*, an account of Lowell's experiences with the blue jays.

6 Give in detail, from *A Glance Behind the Curtain*, Cromwell's reasons for not wishing to leave England.

7 Sketch the life of Longfellow, mentioning sources from which he gathered material for his work.

8 Show how the anxiety and happiness of domestic life are portrayed in the *Hanging of the Crane.*

9 Give an account of *two* of the following characters, showing how they are connected with the story of *Lars:* Brita, Ezra Mendenhall, Abner Cloud, Per.

10 Expand *one* of the following quotations from *Nature* into a paragraph that will fully express Emerson's thought:

a If there were good men there would never be this rapture in nature.

b Things are so strictly related, that according to the skill of the eye, from any one object the parts and properties of any other may be predicted.

c In like manner, there is throughout nature something mocking, something that leads us on and on, but arrives nowhere.

11 Write, from *Reveries of a Bachelor*, a description of the author's first sea voyage.

12 Give, from the *Alhambra*, an account of Spanish traveling in Irving's time.

13 Give an account of Franklin's efforts with reference to the paving, cleaning and lighting of the streets of Philadelphia.

14 Give, from the *Farewell Address*, Washington's views in regard to (*a*) the indispensability of religion and morality in a nation, (*b*) the methods of preserving public credit.

15 At the conclusion of the *Gettysburg Address* Lincoln says, "It is rather for us to be here dedicated to the great task remaining before us."

Mention the four resolves suggested by Lincoln to show how this dedication may be accomplished.

High School Department

182D EXAMINATION

AMERICAN SELECTIONS

Tuesday, June 14, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Describe, from the *Last of the Mohicans*, an incident illustrating *each* of the following: Indian treachery, Indian stoicism.

2 Show the connection of Holgrave with the story of the *House of the Seven Gables.*

3 Give the substance of a passage from *Thanatopsis* that shows (*a*) the magnificence of man's final resting-place, (*b*) Bryant's belief that a noble life is the best preparation for death.

4 Once to every man and nation comes the moment to decide,
In the strife of Truth with Falsehood, for the good or evil side.

To what decision does Lowell refer in the above quotation from the *Present Crisis?* Give Lowell's position on the question at issue, illustrating by references or quotations.

5 Give, from *My Garden Acquaintance*, a sketch of what Lowell says concerning catbirds.

6 Give, from *A Glance Behind the Curtain*, Hampden's advice to Cromwell.

7 Describe, from the *Hanging of the Crane*, the "royal guest with flaxen hair."

8 Narrate, from *Lars*, the circumstances under which Brita (*a*) lost the brooch, (*b*) found the brooch.

9 Sketch, from *Reveries of a Bachelor*, the story of Carry.

10 Relate, from the *Alhambra*, the legend of the two discreet statues.

11 In the essay on *Nature* Emerson says, "Nature is always consistent, though she feigns to contravene her own laws."

Show how Emerson proves the truth of this statement.

12 Give, from the *Autobiography*, an account of Franklin's first arrival in Philadelphia.

13 Mention, from the *Farewell Address*, *three* evils that Washington considers arise from the passionate attachment of one nation for another.

14 Give, by quotations or otherwise, the substance of the *Gettysburg Address.*

15 Mention the poem from which each of *two* of the following quotations is taken and explain the references in the italicized words:

a Yet sometimes feathered words are strong,
A gracious memory to buoy up and save
From *Lethe's dreamless ooze.*

b As if fair *Ariadne's crown*
Out of the sky had fallen down.

c As I once,
Being yet a boy, did cast this puny king,
Who now has grown so dotard as to deem
That he can wrestle with an angry realm,
And throw the *brawned Antaeus* of men's rights.

d And out of stillness rose that sunset hymn
Of Sicily, the *O sanctissima.*

University of the State of New York

High School Department

180TH EXAMINATION

FRENCH — First Year

Monday, January 25, 1904 — 1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

LE CHEVAL

La plus noble conquête que l'homme ait jamais faite est celle de ce fier animal qui partage avec lui les fatigues de la guerre et la gloire des combats: aussi intrépide que son maître, le cheval voit le péril et l'affronte; il se fait au bruit des armes, il l'aime, il le cherche, et s'anime de la même ardeur. Il partage aussi ses plaisirs de la chasse, des tournois, de la course. Mais, docile autant que courageux, il ne se laisse point emporter à son feu, il sait réprimer ses mouvements: non seulement il fléchit sous la main de celui qui le guide, mais il semble consulter ses désirs.

affronter = face, *se faire* = get used, *course* = race, *fléchir* = submit

3–4 Translate into English:

LA PETITE FILLE ET LES ALLUMETTES

La petite fille cheminait avec ses pieds nus, qui étaient rouges et bleus de froid. Elle avait dans son vieux tablier une grande quantité d'allumettes, et elle portait à la main un paquet. C'était pour elle une mauvaise journée; pas d'acheteurs, donc pas le moindre sou. Elle avait bien faim et bien froid. Pauvre petite! Les flocons de neige tombaient dans ses longs cheveux blonds, bouclés autour de son cou; mais songeait-elle seulement à ses cheveux bouclés? Les lumières brillaient aux fenêtres, le fumet des rôtis s'exhalait dans la rue; c'était la veille du jour de l'an: voilà à quoi elle songeait.

allumette = match, *tablier* = apron, *boucler* = curl, *rôti* = roast meat

5–6 Translate into English:

UN EMPEREUR SOUFFLEUR DE FORGE

Comme Joseph II voyageait en Italie, le fer d'une des roues de sa voiture se cassa. Il s'arrêta à la porte d'un forgeron e

lui dit de réparer sur-le-champ le dommage. "Je le ferais bien volontiers," dit le forgeron; "mais je n'ai personne pour souffler le feu." "Si c'est là tout," dit l'empereur, "je ferai cela moi-même." Là-dessus il souffle le feu, l'artisan forge et la roue est réparée. "Combien vous dois-je?" "Six livres." Le monarque met six ducats dans la main du forgeron et part. L'honnête artisan court après lui. "Monsieur, vous m'avez trop donné."

"Le surplus des six livres est pour le plaisir que j'ai eu à souffler le feu."

souffleur=blower, *forgeron*=blacksmith

7 Translate into French: (*a*) Please do not come in the afternoon, (*b*) They have written me in regard to the affair of which you speak, (*c*) Under the bridge hundreds of boats were passing, (*d*) Everybody would cease to oppose you, (*e*) Why does the sky appear blue?

8 Conjugate the following in the plural: *manger* in the imperfect indicative active, *recevoir* in the preterit (past definite) indicative active, *se prendre* in the present subjunctive. [Do not omit the pronouns.]

9 Write the masculine and feminine plural of the following adjectives: *égal*, *tout*, *nouveau*, *heureux*, *franc*.

10 Write in French the cardinals from eleven to thirty inclusive. [Do not use figures.]

11 Translate into French: (*a*) You must be more attentive, (*b*) When it rains I have the toothache, (*c*) This is worth more than that, (*d*) Go away more quietly than you came, (*e*) He knows how to do everything.

12 Give the forms of the preposition and article used before nouns in the partitive sense. Mention *two* cases in which the article may be omitted before nouns in the partitive sense. Illustrate by original French sentences.

13 State the general rule for the formation of adverbs. Form an adverb from *sage*, *heureux*, *prudent*. Write four adverbs that are exceptions to the rule given.

14 Write the present active participle and the past participle of *voir*, *savoir*, *offrir*, *mettre*, *connaître*.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *Le colimaçon*, *Chanson de Barberine*, *La petite mendiante*, *La tombe dit à la rose*.

University of the State of New York

High School Department

182D EXAMINATION

FRENCH — First Year

Monday, June 13, 1904 — 1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

LE ROI ET LE MEUNIER

Le roi convoite un jardin plein de pelouses, de fontaines, de statues, de grottes. Au lieu de tout cela on trouve au bout de chaque allée le moulin du meunier Arnold. C'est insupportable. "Ce moulin a sûrement son prix," se dit le roi. "J'en donne le prix de deux, de trois, de six moulins." Le meunier est sourd à toutes les offres du roi. "Gardez votre argent, sire," dit-il au roi. "Moi, je garderai le moulin de mes aïeux."

Enfin le roi, las de cette opiniâtreté, menace le meunier. "Sire," dit le meunier inébranlable, "Votre Majesté oublie qu'il y a des juges à Berlin."

meunier = miller, *convoiter* = long for, *pelouse* = lawn

3–4 Translate into English:

GÉNÉRAL

Puis le jeune aide-de-camp pâlit et tombe sur l'herbe. "Votre nom, mon ami," demande Napoléon, se penchant sur lui. "Le petit Jean B. de Saint-Cloud, sire," répond le jeune officier, avec un pâle sourire. "Je voulais être général, si vous vous rappelez, sire. Mais je crois que ce sera ma dernière campagne." "Brave enfant," dit l'empereur, "je me rappelle, tu voulais être général, avec une croix et un grand sabre. Eh bien, ta mort est digne de ton ambition. Voici la croix!" Détachant sa propre croix, Napoléon la posa sur la poitrine de l'intrépide officier. "Vive l'empereur! vive la France!" s'écria le jeune aide-de-camp par un dernier effort. Il retomba alors inanimé.

5–6 Translate into English:

UN TRAIT INGÉNIEUX

Le docteur Zeb apprit qu'il vaquait une place à cette académie: il accourt pour l'obtenir; malheureusement il arriva

trop tard. Le président, ne sachant comment exprimer un tel refus qui faisait rougir l'assemblée, se fit apporter une coupe qu'il remplit d'eau si exactement, qu'une goutte de plus l'eût fait déborder. Le savant solliciteur comprit par cet emblême qu'il n'y avait plus de place pour lui: il se retirait tristement, lorsqu'il aperçut une feuille de rose à ses pieds. Il prend la feuille de rose et la pose si délicatement sur l'eau qu'il ne s'en échappa pas une seule goutte. A ce trait ingénieux le docteur fut reçu par acclamation au nombre des académiciens.

trait=act, *vaquer*=be vacant, *goutte*=drop

7 Translate into French: (*a*) At last everybody went to bed, rejoicing at the good news, (*b*) When shall I send the books to the boys? Send them to them tomorrow, (*c*) He is afraid to do it, (*d*) This boy is the child of a good and brave soldier, (*e*) How beautiful it is!

8 Conjugate the following in the singular: *craindre* in the future indicative active, *se jeter* in the preterit (past definite) indicative; the following in the plural: *valoir* in the imperfect indicative active. [Do not omit the pronouns.]

9 Mention an adjective ending in *e* (mute), *on*, *f*, *x*, *eur*. Form the feminine of each adjective mentioned.

10 Write in French the names of the months and of the days of the week.

11 Translate into French: (*a*) They will go to Paris with us, (*b*) Both will remain in the United States, (*c*) Rio de Janeiro is in South America, (*d*) He has no interests in France, (*e*) They set out from Canada.

12 Write, with article, the singular of *voix*, *cheveux*, *nez*, *animaux*, *yeux*.

13 Give the forms of the interrogative pronouns when used as (*a*) subject of a verb, (*b*) object of a verb, (*c*) object of a preposition.

14 Write the first person singular of *each* of the tenses of the indicative and subjunctive of *venir*.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *La feuille desséchée*, *Partant pour la Syrie*, *La tombe dit à la rose*, *Le petit Pierre.*

High School Department

180TH EXAMINATION

FRENCH—Second Year

Monday, January 25, 1904—9.15 a. m. to 12.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1-2 Translate into English:

COLOMBA

Aussitôt la barre de bois placée en travers de la porte fut enlevée, et Colomba reparut dans la salle à manger suivie d'une petite fille de dix ans à peu près, pieds nus, en haillons, la tête couverte d'un mauvais mouchoir, de dessous lequel s'échappaient de longues mèches de cheveux noirs comme l'aile d'un corbeau. L'enfant était maigre, pâle, la peau brûlée par le soleil; mais dans ses yeux brillait le feu de l'intelligence. En voyant Orso, elle s'arrêta timidement et lui fit une révérence à la paysanne; puis elle parla bas à Colomba, et lui mit entre les mains un faisan nouvellement tué.—*Mérimée*

haillon=rag, *mèche*=lock, *faisan*=pheasant

3-4 Translate into English:

LA TULIPE NOIRE

Ma belle amie, dit-il, j'ai beaucoup aimé les fleurs. C'était dans le temps où j'ignorais que l'on pût aimer autre chose. Oh! ne rougissez pas, ne vous détournez pas. J'aimais les fleurs, Rosa, et j'avais trouvé, je le crois du moins, le secret de la grande tulipe noire que l'on croit impossible, et qui est, vous le savez ou vous ne le savez pas, l'objet d'un prix de cent mille florins proposé par la société horticole de Harlem. Ces cent mille florins je les ai là dans ce papier; ils sont gagnés avec les trois caïeux qu'il renferme, et que vous pouvez prendre, Rosa, car je vous les donne.—*Dumas*

caïeu=bulb

5-6 Translate into English:

LES MISÉRABLES

Il entra dans une petite rue où il y a beaucoup de jardins. Quelques-uns ne sont enclos que de haies, ce qui égaye la rue

Parmi ces jardins et ces haies, il vit une petite maison d'un seul étage dont la fenêtre était éclairée. Il regarda par cette vitre comme il avait fait pour le cabaret. C'était une grande chambre avec un lit et un berceau dans un coin, quelques chaises de bois et un fusil accroché au mur. Une table était servie au milieu de la chambre. A cette table était assis un homme d'une quarantaine d'années, à la figure joyeuse et ouverte, qui faisait sauter un petit enfant sur ses genoux.—*Hugo*

vitre=window-pane, *cabaret*=tavern, *berceau*=cradle, *accrocher*=hang up

7 Translate into French: (*a*) If we should fear to do such a noble act, we should be condemned by everybody, (*b*) There is no easy road to learning, (*c*) The workmen will have finished by the end of the week, (*d*) Take care that you do not fall.

8 Translate into French: (*a*) Eat and drink something before you start, (*b*) He is the only man whom I know, (*c*) His sister asked every day how he was, (*d*) The general remained only a little while in this place, (*e*) May he come.

9 Write the principal parts (primitive tenses) of *dormir*, *faillir*, *fuir*, *vouloir*, *sentir*.

10 State the rules for the use of *dans* and *en* in expressions of time. Write and translate an original French sentence illustrating each rule mentioned.

11 Explain the use of *que* as (*a*) a relative pronoun, (*b*) an interrogative pronoun, (*c*) a means of avoiding the repetition of a preceding conjunction. Write and translate a French sentence illustrating each use mentioned.

12 Translate into French: (*a*) He will never come, (*b*) I can not do it (unemphatic negation), (*c*) He is a taller man than you are, (*d*) Do not say so unless you are certain, (*e*) Not at all.

13 Give, with illustrations, the different uses of the pronoun *on*.

14 Write the first person singular of all the tenses of the indicative active of *courir*. Give in each case the name of the tense.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *Mon habit*, *La cigale et la fourmi*, *Adieu*, *Les deux routes*.

University of the State of New York

High School Department

182D EXAMINATION

FRENCH—Second Year

Monday, June 13, 1904—9.15 a. m. to 12.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

HISTOIRE D'UN CONSCRIT DE 1813

Lorsque je rouvris les yeux, la nuit venait; les Prussiens défilaient dans la ruelle en courant. Ils remplissaient déjà le village, et dans le jardin en face se trouvait un vieux général, la tête nue, les cheveux blancs, sur un grand cheval brun. Il criait comme une trompette d'amener des canons, et des officiers partaient porter ses ordres. Près de lui, debout sur le petit mur encombré de morts, un de leurs chirurgiens lui bandait le bras. Je vis dans le fond de la vallée, à cinq ou six cents pas, entre deux maisons, nos soldats qui se reformaient. Tout cela je l'ai devant moi comme si j'y étais encore.—*Erckmann-Chatrian*

3–4 Translate into English:

LE NABAB

Et tout de suite, machinalement, le pauvre homme fit son geste éloquent de maquignon. Instinctivement aussi, le visiteur eut un mouvement de recul si prompt, si offensé, que le Nabab comprit qu'il se méprenait et se donna la peine de regarder le jeune homme qui se tenait devant lui, simplement mais correctement vêtu, les traits réguliers, peut-être un peu trop sérieux et fermés pour son âge, ce qui, avec ses cheveux d'un blond pâle, frisés par petites boucles comme une perruque poudrée, lui donnait l'aspect d'un jeune député du tiers sous Louis XVI, la tête d'un Barnave à vingt ans.—*Daudet*

maquignon=jockey, *recul*=recoil, *boucle*=curl, *tiers*=Third Estate

5–6 Translate into English:

CHRONIQUE DU RÈGNE DE CHARLES IX

Devant une table de chêne était assis le capitaine. C'était un grand et gros homme de cinquante ans environ, avec un nez aquilin, les cheveux grisonnants et rares, couvrant mal une large cicatrice qui commençait à l'oreille gauche, et qui venait se perdre dans son épaisse moustache. Il avait ôté sa cuirasse et son casque, et n'avait conservé qu'un pourpoint de cuir de Hongrie, noirci par le frottement de ses armes, et soigneusement rapiécé en plusieurs endroits. Son sabre et ses pistolets étaient déposés sur un banc à sa portée; seulement il conservait sur lui un large poignard, arme qu'un homme prudent ne quittait que pour se mettre au lit.—*Mérimée*

cicatrice=scar, *pourpoint*=doublet

7 Translate into French: (*a*) If you did not speak so quickly, they could understand you better, (*b*) The people were still laughing as they passed from the theater, (*c*) Marin would rather fight in the deserts of Algiers than rest by the shady banks of the Garonne.

8 Translate into French: (*a*) She stood before the door, waiting for the men to come back from the fields, (*b*) The leaves have not fallen yet nor will they fall for some days, (*c*) You and your sister ought to be very studious, (*d*) I remember about it, (*e*) Go away.

9 Write the principal parts (primitive tenses) of *acquérir*, *construire*, *joindre*, *sortir*, *taire*.

10 Mention *three* classes of verbs followed by the subjunctive. Write an original French sentence illustrating the subjunctive following each class mentioned.

11 Write and translate original French sentences illustrating the use of *each* of the following prepositions: *sur*, *au-dessus de*, *par*, *à travers*, *auprès de*.

12 Write and translate original French sentences distinguishing in meaning the following when followed by the infinitive: (*a*) *venir*, *venir à*, *venir de*, (*b*) *laisser*, *laisser de*.

13 Give the feminine of *each* of the following: *un époux*, *un garçon*, *un hôte*, *un prince*, *un témoin*, *un neveu*, *un empereur*, *un héros*, *un artiste*, *un maître*.

14 Write the third person singular and the second person plural of *each* of the simple (uncompounded) tenses of the indicative and subjunctive of *se placer*.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *Adieux de Marie Stuart*, *La source*, *Les deux routes*, *Le vase brisé*.

High School Department

180TH EXAMINATION

FRENCH—Third Year

Monday, January 25, 1904—1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1-2 Translate into English:

POLYEUCTE

Stratonice—C'est une impiété qui n'eut jamais d'exemple;
Je ne puis y penser sans frémir à l'instant,
Et crains de faire un crime en vous la racontant.
Apprenez en deux mots leur brutale insolence.
Le prêtre avait à peine obtenu du silence,
Et devers l'orient assuré son aspect,
Qu'ils ont fait éclater leur manque de respect.
A chaque occasion de la cérémonie,
A l'envi l'un et l'autre étalait sa manie,
Des mystères sacrés hautement se moquait,
Et traitait de mépris les dieux qu'on invoquait.—*Corneille*

devers=toward, *assurer*=fix, *étaler*=display

3-4 Translate into English:

L'AVARE

Harpagon—Voilà un pendard de valet qui m'incommode fort et je ne me plais point à voir ce chien de boiteux-là. Certes, ce n'est pas une petite peine que de garder chez soi une grande somme d'argent; et bien heureux qui a tout son fait bien placé, et ne conserve seulement que ce qu'il faut pour sa dépense. On n'est pas peu embarrassé à inventer dans toute une maison une cache fidèle; car, pour moi, les coffres-forts me sont suspects, et je ne veux jamais m'y fier; je les tiens justement une franche amorce à voleurs; et c'est toujours la première chose que l'on va attaquer.—*Molière*

pendard = scoundrel, *boiteux* = lame person, *cache* = hiding-place, *amorce* = bait

5-6 Translate into English:

HERNANI

Doña Sol—Rien que la nuit et nous. Félicité parfaite!
Dis, ne le crois-tu pas? sur nous, tout en dormant,
La nature à demi veille amoureusement.
Pas un nuage au ciel. Tout, comme nous, repose.

Viens, respire avec moi l'air embaumé de rose!
Regarde. Plus de feux, plus de bruit. Tout se tait.
La lune tout à l'heure à l'horizon montait
Tandis que tu parlais, sa lumière qui tremble
Et ta voix, toutes deux m'allaient au cœur ensemble,
Je me sentais joyeuse et calme, ô mon amant,
Et j'aurais bien voulu mourir en ce moment!—*Hugo*

7 Translate into French: Of a careless and light disposition, La Fontaine never took seriously many of the duties of life. The regard for order and the practical good sense that govern the relations of family and of society seemed entirely lacking in him. He was like a big child.

8 Translate into French: Professor Lessing, who was very absent-minded, knocked at his own door one evening. The servant, not observing that it was his master, said to him, "The professor is not at home." "Very well," Lessing replied, going away slowly, "I shall come again."

9 Conjugate the following in the singular: *conclure* in the preterit (past definite) indicative active, *vêtir* in the present subjunctive active, *croître* in the imperfect subjunctive; the following in the plural: *acquérir* in the present indicative active, *boire* in the present indicative active.

10 Give *three* characteristics of the present participle that distinguish its use from that of the verbal adjective in *ant*. Illustrate by an original French sentence each characteristic mentioned.

11 Write in French about 75 words on the life and works of *one* of the following: Racine, Le Sage, Dumas fils.

12 Translate into French: (*a*) Are you ill? I am, (*b*) Are you the girls that were to meet us? We are, (*c*) Are they women that you know? They are, (*d*) Is that the reason? It is, (*e*) It is larger than I thought.

13 Write in French a letter of at least 75 words describing some celebration that you have attended.

14 Write the second person singular of all the tenses of the indicative, subjunctive, conditional and imperative active of *mouvoir*.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *Les souvenirs du peuple*, *Mes bœufs*, *La pauvre fleur*, *La Marseillaise*.

High School Department

182D EXAMINATION

FRENCH—Third Year

Monday, June 13, 1904—1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but no more. *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1-2 Translate into English:

ATHALIE

Abner—Il lui feint qu'en un lieu que vous seul connaissez,
Vous cachez des trésors par David amassés.
Enfin, depuis deux jours, la superbe Athalie
Dans un sombre chagrin paraît ensevelie.
Je l'observais hier, et je voyais ses yeux
Lancer sur le lieu saint des regards furieux;
Comme si dans le fond de ce vaste édifice
Dieu cachait un vengeur armé pour son supplice.
Croyez-moi, plus j'y pense, et moins je puis douter
Que sur vous son courroux ne soit près d'éclater;
Et que de Jézabel la fille sanguinaire
Ne vienne attaquer Dieu jusqu'en son sanctuaire.—*Racine*

ensevelir=engross, *courroux*=wrath

3-4 Translate into English:

A M . . .

Je tombai hier par hasard sur un mauvais livre d'un nommé Dennis; car il y a aussi de méchants écrivains parmi les Anglais. Cet auteur, dans une petite relation d'un séjour de quinze jours qu'il a fait en France, s'avise de vouloir faire le caractère de la nation qu'il a eu si bien le temps de connaître. Je vais, dit-il, vous faire un portrait juste et naturel des Français; et, pour commencer, je vous dirai que je les hais mortellement. Ils m'ont accablé de civilités; mais tout cela est pur orgueil: ce n'est pas pour nous faire plaisir qu'ils nous reçoivent si bien, c'est pour se plaire à eux-mêmes.—*Voltaire*

s'aviser=presume

5-6 Translate into English:

ROBESPIERRE

"Irréprochable," voilà le mot que, depuis sa première jeunesse, une voix intérieure lui répète tout bas pour le consoler

de son obscurité et de son attente; il l'a été, il l'est, et il le sera; il se le dit, il le dit aux autres, et tout d'une pièce, sur ce fondement, son caractère se construit. Ce n'est pas lui qu'on séduira; il est l'incorruptible. "Seul, ou presque seul, je ne me laisse pas corrompre. Quelques autres ont peut-être des mœurs; mais ils combattent ou trahissent les principes; quelques autres professent de bouche les principes, mais ils n'ont pas de mœurs. Nul, avec des mœurs aussi pures, n'est aussi fidèle aux principes."—*Taine*

7 Translate into French: Do not think, young man, to find lasting inspiration in the emotions of lawlessness. I know what terrible temptations surround the life of the beginner; I know them and you yourself will know them soon. Be upright then, if only because the interests of your future demand it.

8 Translate into French: Like all mountainous countries Brittany has a severe and uneven climate, long snows and violent rains prevailing in winter, great heat and destructive storms in summer. From its general appearance, race and language it belongs to the south of France.

9 Conjugate the following in the singular: *faillir* in the future indicative, *vivre* in the preterit (past definite) indicative; the following in the plural: *naître* in the imperfect indicative, *se repentir* in the past indefinite. Write the imperative of *déchoir*.

10 State, with illustrations, *five* positions in which the adverb may be placed in a sentence.

11 Write in French about 75 words on the life and works of *one* of the following: La Fontaine, Voltaire, Daudet.

12 Mention *five* uses of the infinitive. Illustrate by original French sentences.

13 Translate into English: (*a*) Il y a longtemps que je ne l'ai vu, (*b*) On lui prit sa montre, (*c*) J'ai failli oblier cela, (*d*) Elles ont dû être bien lasses, (*e*) Comment cela se fait-il? (*f*) Allons, ne fais pas l'enfant, (*g*) Cela va sans dire, (*h*) Etes-vous sa sœur? Je la suis, (*i*) Il m'a cassé le doigt, (*j*) Il se tient debout.

14 Write all the infinitives and participles, active and passive, of *résoudre*.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *Le retour dans la patrie*, *La mort de Jeanne d'Arc*, *Hymne de l'enfant à son réveil*, ***Mes bœufs***.

University of the State of New York

High School Department

179TH EXAMINATION

GERMAN—First Year

Tuesday, September 29, 1903—9.15 a. m. to 12.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

MONI DER GEISSBUB

Moni nahm seinen kleinen Proviantsack vom Rücken, legte ihn in eine kleine Höhle des Bodens, die er selbst dafür gegraben hatte, trat dann auf die Felsenkanzel hinaus und warf sich auf den Boden. Der Himmel war jetzt dunkelblau geworden; drüben waren die hohen Berge und drunten leuchtete weithin das grüne Thal im Morgenglanz. Moni lag da, schaute umher, sang und pfiff. Der Bergwind kühlte ihm das warme Gesicht, und hörte er einmal zu pfeifen auf, so pfiffen die Vögel über ihm noch viel lustiger und flogen in den blauen Himmel hinauf. Dem Moni war es unbeschreiblich wohl.

Geiſsbub=goatherd, *Proviantsack* = bag of provisions, *Felsenkanzel*=rock-pulpit, *aufhören*=cease

3–4 Translate into English:

HEINO IM SUMPF

Als sie sah, daſs er still und ruhig schlief, zog sie sich den Ring, den er ihr geschenkt, vom Finger, steckte ihm denselben an die Hand und machte sich auf den Heimweg. Sobald sie angekommen war, ging sie zum alten König und sagte zu ihm, indem sie ihn freudig mit ihren groſsen blauen Augen anblickte: "Ich habe eueren Sohn erlöst; er wird bald zu euch zurückkehren. Behüt' euch Gott, mich seht ihr nimmer wieder."

Da zog sie der alte König an sein Herz und sprach: "Blauäuglein, meine Tochter, du kannst eine Krone tragen so stolz wie ein Königskind! Wenn du ihm verzeihen willst und einen Einarmigen zum Mann nehmen, so sollst du seine Königin sein dein Lebelang."

Sumpf=swamp, *erlösen*=rescue, *behüten*=preserve

5–6 Translate into English:

DIE REISEGEFÄHRTEN

Bald darauf begegnete das Mädchen einer Frau im Walde, welche fleiſsig Holz und Beeren sammelte; diese rief ihr zu:

"Sieh nur, was für schöne Beeren hier wachsen! Die solltest du pflücken."—"Ach", antwortete das Mädchen, "das macht gar zu viel Mühe und noch bin ich weder hungrig noch durstig." "Du wirst es aber werden", meinte die Frau, "denn der Weg ist weit, und höher oben wirst du keine Früchte mehr finden." Ungern nahm das Mädchen den Korb, den ihr die andere reichte und fing an zu pflücken.

Reisegefährte = fellow-traveler, *sammeln* = gather, *Mühe* = trouble, *Korb* = basket

7 Translate into German: (*a*) I have never known such a boy, (*b*) Here are the books you have chosen, (*c*) Though it was cold, the whole afternoon was fine, (*d*) I do not know what to do, (*e*) When will you be ready to go with me?

8 Conjugate, in the singular, the present indicative active of *tragen*, the perfect indicative of *kriechen*, the present subjunctive of *müssen*, the perfect subjunctive of *bleiben*, the future perfect subjunctive active of *anfangen*.

9 Decline, in singular and plural, *sein jüngerer Sohn*, *jener Herr*.

10 Write the principal parts of *betrügen*, *verzeihen*, *sinnen*, *wachsen*, *klingen*.

11 Compare *nah*, *laut*, *kurz*, *edel*, *froh*.

12 Decline (*a*) *derselbe* in the plural, (*b*) the personal pronouns of the third person throughout.

13 Answer *each* of the following questions by an original German sentence containing at least *six* words [Do not use figures]: (*a*) Warum studieren Sie Deutsch? (*b*) Den wievielsten haben wir heute? (*c*) Wo wohnen Sie? (*d*) Wie vielerlei Äpfel haben Sie in Ihrem Baumgarten? (*e*) Wo gehen Sie des Sommers hin?

14 Write and translate original German sentences of at least *six* words each, containing (*a*) an adverbial conjunction, (*b*) a preposition governing the genitive, (*c*) an adverb of degree and an adverb of manner, (*d*) a verb in the passive voice, (*e*) an impersonal verb.

15 Write from memory and translate 10 consecutive lines of *one* of the following: *Der gute Kamerad*, *Heidenröslein*, *Sinnsprüche*, *Die Lorelei*.

High School Department

180TH EXAMINATION

GERMAN — First Year

Tuesday, January 26, 1904 — 9.15 a. m. to 12.15 p. m., **only**

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

DER TANNENBAUM

Aber er freute sich gar nicht und wuchs und wuchs; Winter und Sommer stand er grün; die Leute, die ihn sahen, sagten: "Das ist ein hübscher Baum!" Und zu Weihnachten wurde er vor allen zuerst gefällt. Die Axt hieb tief ein, der Baum fiel mit einem Seufzer zu Boden; er fühlte einen Schmerz, eine Art Ohnmacht, er konnte gar nicht an das kommende Glück denken, er war betrübt, von der Heimat scheiden zu müssen; er wufste ja, dafs er die lieben alten Kameraden, die kleinen Büsche und Blumen ringsum nie mehr erblicken würde, ja vielleicht nicht einmal die Vögel. Die Abreise war gar nicht angenehm.

Seufzer=groan, *Ohnmacht*=faintness, *Abreise*=parting

3–4 Translate into English:

HÄNSEL UND GRETEL

Die Frau führte die Kinder noch tiefer in den Wald, wo sie ihr Lebtag noch nicht gewesen waren. Da ward wieder ein grofses Feuer angemacht, und die Mutter sagte: "Bleibt nur da sitzen, ihr Kinder, und wenn ihr müde seid, könnt ihr ein wenig schlafen. Wir gehen in den Wald und hauen Holz, und abends, wenn wir fertig sind, kommen wir und holen euch ab." Als es Mittag war, teilte Gretel ihr Brot mit Hänsel, der sein Stück auf den Weg gestreut hatte. Dann schliefen sie ein und der Abend verging, aber niemand kam zu den armen Kindern.

streuen=strew

5–6 Translate into English:

LORD CRAVEN UND BEN JONSON

Der Lord kam heraus, während sie sich zankten, und fragte nach der Ursache. Ben, welcher immer fertig war, um für sich zu sprechen, sagte, er habe gehört, dafs Mylord ihn zu sehen

wünsche. "Sie, mein Freund," sagte der Lord, "wer sind S denn?" "Ben Jonson," erwiderte jener. "Nein, nein," sag Mylord, "Sie können nicht Ben Jonson sein, der *Das schw* *gende Weib* schrieb; Sie sehen aus, als ob Sie nicht 'Bo!' einer Gans sagen könnten." "Bo!" rief Ben. "Sehr woh antwortete Mylord, "Sie haben mich durch Ihren Witz üb zeugt, dafs Sie Ben Jonson sind."

sich zanken=quarrel, *überzeugen*=convince

7 Translate into German: (*a*) She rode to town to bu new hat, (*b*) My sister and I have studied the same lesson, He thought that she had already gone home, (*d*) I know man whose brother was here yesterday, (*e*) What are largest rivers of Germany?

8 Conjugate, in the singular, the present indicative of *läch* the present indicative active of *stechen*, the imperfect indicat active of *geniefsen*, the perfect indicative passive of *schnei* the imperfect subjunctive active of *schlagen*.

9 Decline, in singular and plural, *die hohe Bank*, *mein G*

10 Write the principal parts of *saufen*, *schwinden*, *gedei* *fressen*, *blasen*.

11 Indicate the gender and the accent of each of *five* of following nouns: *Hoffnung*, *Student*, *Gräfin*, *Gemälde*, *An* *genheit*, *Silber*, *Schmeichelei*, *Betrüger*.

12 Write the synopsis of *dürfen* in the third person sing of the indicative and subjunctive.

13 Translate into English: (*a*) Nach meiner Uhr wi drei Viertel nach sechs, (*b*) In der Frühe des Morgens g sie spazieren, (*c*) Es ist Schade, (*d*) Ich möchte wohl ihn si hören, (*e*) Machen Sie doch einmal die Thür zu!

14 Write and translate original German sentences of at *six* words each, containing the following: (*a*) an adje used substantively, (*b*) a verb governing the dative, (*c*) a solute superlative, (*d*) an ordinal numeral, (*e*) an interrog pronoun in the genitive case.

15 Write from memory and translate *Du bist wie eine B* or 10 consecutive lines of *one* of the following: *Der Kamerad*, *Sinnsprüche*, *Das Schlofs am Meere*.

University of the State of New York

High School Department

181ST EXAMINATION

GERMAN—First Year

Friday, March 25, 1904—9.15 a. m. to 12.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

DREI RÄTSEL

"Könnt ihr mir meine Fragen beantworten?" fragte der Kaiser, und der Schäfer sprach laut: "Ja wohl, Herr Kaiser!" "Wie tief ist denn das Meer, wo es am allertiefsten ist?" fragte der Kaiser. "Nur einen Steinwurf!" sagte der Schäfer, und der Kaiser lachte und sprach, das wäre ganz richtig.

"Wie viel Sterne stehen aber am Himmel?" fragte der Kaiser, und der Schäfer antwortete: "Gerade so viel als Blätter auf allen Bäumen im Odenwalde! Wollt ihr's aber nicht glauben, so lafst sie nur zählen!" "Ja, das wäre ein Kunststück!" rief der Kaiser, "aber es kann sein."

Rätsel=riddle, *Kunststück*=feat

3–4 Translate into English:

DIE RUMPELKAMMER

Er schlofs die Augen und träumte. Wieder war es die Jugendgespielin, die ihn beschäftigte; nicht die schlanke, schweigsame Jungfrau, sondern die kleine Ursula, die ihn mit ihren grofsen blauen Augen ansah. "Guten Tag, Urselchen," sagte er zu ihr, "ich bin mit den Schularbeiten fertig; komm, wir wollen in der Rumpelkammer spielen; ich habe das neue Buch mitgebracht!" Er nahm sie bei der Hand, und sie sprangen vergnügt die Treppe hinauf. Über dem Wohnzimmer lag eine grofse Kammer; hier war ihr Lieblingsspielplatz.

Rumpelkammer=lumber-room, *Gespielin*=playmate, *ihn beschäftigen*=occupy his mind, *Lieblingsspielplatz*=favorite playground

5–6 Translate into English:

DER WEINBERG

Ein Vater sagte kurz vor seinem Tode zu seinen drei Söhnen: "Liebe Kinder! Ich kann euch nichts zurücklassen, als diese

unsere Hütte und den Weinberg daran. In dem Weinberge liegt aber ein verborgener Schatz. Grabt nur fleiſsig nach, so werdet ihr ihn finden." Nach dem Tode des Vaters gruben die Söhne den ganzen Weinberg mit dem gröſsten Fleiſse um — und fanden weder Gold noch Silber. Weil sie aber den Weinberg noch nie so fleiſsig bearbeitet hatten, so brachte er eine solche Menge Trauben hervor, daſs sie darüber erstaunten. Jetzt erst fiel den Söhnen ein, was ihr seliger Vater mit dem Schatze gemeint hatte.

Weinberg = vineyard, *Schatz* = treasure, *Menge* = quantity, *einfallen* = occur

7 Translate into German: (*a*) The mice have eaten all the nuts, (*b*) The fruit was sent by her neighbors, Mr and Mrs Smith, (*c*) If he had gone he would have seen my friend, (*d*) My youngest sister has the toothache, (*e*) What is that girl's name?

8 Conjugate the following in the singular: *treten* in the present indicative active, *abreisen* in the imperfect indicative, *befehlen* in the imperfect subjunctive active; the following in the plural: *leihen* in the imperfect indicative active, *bieten* in the pluperfect subjunctive active.

9 Decline, in both singular and plural, the German for *our old dog*, *that field*.

10 Write the principal parts of *waschen*, *fehlen*, *steigen*, *heiſsen*, *schwingen*.

11 Give, with reason, the case of each italicized word in the following: (*a*, *b*, *c*) Vor langen *Jahren* wohnte ein armer Mann in einer ärmlichen *Hütte* mit seinen *Söhnen*, (*d*) Heinrich blied zwei *Nächte* hier, (*e*) Bringen Sie *mir* den Tisch.

12 Mention 10 impersonal verbs. Write and translate original German sentences of at least *six* words each, containing *three* of the verbs mentioned.

13 Give the principal parts of each of the modal auxiliaries.

14 Translate into German: (*a*) some one, (*b*) no one, (*c*) every one, (*d*) something, (*e*) nothing, (*f*) each other, (*g*) few, (*h*) all, (*i*) many, (*j*) a little.

15 Write from memory and translate 10 consecutive lines of *one* of the following: *Die Lorelei*, *Schwertlied*, *Der gute Kamerad*, *Heidenröslein*.

University of the State of New York

High School Department

182D EXAMINATION

GERMAN—First Year

Tuesday, June 14, 1904—9.15 a. m. to 12.15 p. m., only

Answer questions 7 and 8 and eight of the others but no more. *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

DAS MÄRCHEN OHNE ENDE

Das Kind trat heraus und war froh, weil die Vöglein so fröhlich sangen und alles ihm in Himmelswonne und in Lebenslust zu tanzen schien. Hier flogen zwei Finklein durch die Gebüsche; dort sprangen Knospen von einander und ein paar Blättlein kamen heraus und legten sich breit in die Sonne, als wenn sie nimmer wieder weg wollten; hier zitterte ein Tautropfen an einer Grasspitze und wuſste nicht, daſs schon unter ihm ein Mäuslein nach ihm dürstete; dort schwärmten Fliegen in die Höhe, als wollten sie weit über den Wald hinaus,—und so war überall Bewegung und Leben und das Kind hatte seine herzige Freude daran.

Himmelswonne=heavenly joy, *Fink*=finch, *Knospe*=bud

3–4 Translate into English:

DIE BEIDEN ZIEGEN

Zwei Ziegen begegneten sich auf einem schmalen Stege, der über einen tiefen Strom führte; die eine wollte herüber, die andere hinüber. "Geh mir aus dem Wege!" sagte die eine. "Das wäre mir schön," rief die andre; "ich war zuerst auf der Brücke: geh du zurück und laſs mich hinüber." "Ich will nicht," sagte die erste, "ich bin so viel älter, als du;" und so wechselten sie noch viele Worte mit einander. Weil nun jede auf ihrem Sinn beharrte, kam es erst zum Zank und endlich zum Kampf zwischen beiden. Sie hielten ihre Hörner vorwärts und rannten zornig gegen einander. Darüber fielen beide von der Brücke und in das tiefe Wasser; da wären sie ertrunken, wenn nicht der Hirt dazu gekommen wäre.

Ziege=goat, *Steg*=bridge, *beharren*=persist, *ertrinken*=be drowned

5–6 Translate into English:

ROBERT BRUCE UND DIE SPINNE

Robert Bruce schlief einst, nach einer verlorenen Schlacht, in der Scheune eines Landmanns. Am nächsten Morgen, als er erwachte, sah er eine Spinne, die ihr Netz an einem Balken des Daches befestigen wollte. Sie konnte ihren Zweck jedoch nicht erreichen, sondern fiel immer wieder herab. Dies erregte die Aufmerksamkeit des Helden. Er sah die Spinne sich zwölfmal vergebens bemühen, aber das dreizehnte Mal gelang es ihr, den Balken zu erreichen. Da sprang der König von seinem Lager auf und rief: "Unterlag ich nicht auch zwölfmal der Übermacht meiner Feinde? Auf *einem* Gefechte beruht vielleicht die Unabhängigkeit des Vaterlandes!" Einige Tage darauf bestätigte sich diese Hoffnung durch den für Schottland glorreichen Ausgang der Schlacht bei Bannockburn.

Zweck = aim, *erregen* = arouse, *Übermacht* = superior power, *Unabhängigkeit* = independence, *bestätigen* = confirm

7 Translate into German: (*a*) My sister gave me a book that I like very much, (*b*) You must remain at home today, (*c*) I have been in the country, (*d*) He thought that he had seen them, (*e*) Why did you not come when I called you?

8 Conjugate, in the singular, the present indicative of *gelten*, the imperfect indicative of *mögen*, the pluperfect indicative active of *biegen*, the imperfect subjunctive of *sich schämen*, the perfect subjunctive active of *vorstellen*.

9 Decline, in the singular, the German for *the true friend*, *a true friend*, *true friend*.

10 Write the principal parts of *laufen*, *nehmen*, *flieſsen*, *geschehen*, *befleiſsen*.

11 Write, with article, the nominative and genitive singular and the genitive plural of the German words for *town*, *heart*, *apple*, *school*, *money*.

12 Fill *each* blank in the following with the correct form of the comparative or the superlative of a suitable adjective: (*a*) Der Birnbaum ist hoch, aber die Tanne ist   , (*b*) Januar ist der   Monat, (*c*) Mein   Bruder ist sechs Jahre alt, (*d*) Die Donau ist der   Fluſs Deutschlands, (*e*) Die Tochter ist viel   als die Mutter, obgleich die Mutter sehr stolz ist.

13 Translate into German: (*a*) It is only a quarter to seven, (*b*) My head aches, (*c*) I am very sorry to hear it, (*d*) Some one is knocking at the door, (*e*) She has had a dress made.

14 Mention (*a*) *two* prepositions that govern either the dative or the accusative, (*b*) *one* preposition that governs either the genitive or the dative. Write and translate original German sentences of at least *six* words each, illustrating both uses of each preposition mentioned.

15 Write from memory and translate *Vergiſsmeinnicht*, or 10 consecutive lines of *one* of the following: *O Straſsburg*, *Die Lorelei*, *Der Wirtin Töchterlein*.

University of the State of New York

High School Department

179TH EXAMINATION

GERMAN — Second Year

Wednesday, September 30, 1903—9.15 a.m. to 12.15 p.m., only

Answer questions 7 and 8 and eight of the others but no more. *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

DER WUNSCHRING

"Lafst den Vater seinen Ring mit ins Grab nehmen. Er hat sein Lebtag seine Heimlichkeit mit ihm gehabt. Es ist wohl ein liebes Andenken. Und die Mutter besah sich den Ring auch so oft; am Ende hat sie ihn dem Vater in ihren jungen Tagen geschenkt."

So wurde denn der alte Bauer mit dem Ringe begraben, der ein Wunschring sein sollte und keiner war, und doch so viel Glück ins Haus gebracht hatte, als ein Mensch sich nur wünschen kann. Denn es ist eine eigene Sache mit dem, was richtig und was falsch ist; und schlecht Ding in guter Hand ist immer noch sehr viel mehr wert, wie gut Ding in schlechter.

Heimlichkeit = secret, *eigen* = singular —*Leander*

3–4 Translate into English:

MEISTER MARTIN HILDEBRAND

Als er sich allmählich zu erholen begann, griff er zum Schnitzmesser und machte allerlei drollige Holzfiguren zum Spielzeug für seine Enkel. Aber sein Geist war nicht bei dieser Arbeit. Er schob sie darum wieder beiseite, und wo er eine heimliche Stunde fand, da holte er sich nun Papier und Feder zu seinem Grofsvatersitz am Ofen und schrieb oft halbe Tage lang, ganz im stillen, und sagte und zeigte niemand, was er schrieb, und nicht einmal seiner Frau, der er sonst alles sagte und zeigte. Wann er aber geschrieben hatte, dann kam allemal eine selige Ruhe über sein Gemüt.—*Riehl*

erholen = recover, *Gemüt* = soul

5–6 Translate into English:

HÖHER ALS DIE KIRCHE

Am andern Morgen mit Tagesgrauen trat Hans reisefertig, ein Ränzel auf dem Rücken und auf der Brust das lederne Beutelchen mit dem letzten Rest von Kaiser Maximilians Goldgulden, aus seiner Thür, schlofs das kleine Haus ab, steckte den Schlüssel in die Tasche und schritt langsam von dannen. Laut und deutlich erschallte seine volle weiche Stimme noch

einmal: "Am Rosendorn, am Rosendorn da bleibt mein Herze hangen."

Leise öffnete sich in Ruppachers Haus eines der niederen Fensterchen mit den runden Scheiben, und ein weifses Tüchlein wehte durch die Dämmerung einen stummen Abschiedsgrufs.

Ränzel=knapsack —*von Hillern*

7 Translate into German: (*a*) She takes flowers to the dying soldiers, (*b*) I think that my brother is still asleep but I will have him called, (*c*) I have heard nothing about it, (*d*) He saved himself by swimming across the river, (*e*) Remember the friend who helped you.

8 Translate into German: (*a*) He left without paying his bill, (*b*) When we had returned from town we went to school, (*c*) This is not to be commenced now, (*d*) Please wait for me till about half past six o'clock, (*e*) Though that man looks young he is older than my father.

9 Conjugate, in the singular, the present indicative active of *graben*, the present indicative active and the perfect indicative active of *essen*, the present subjunctive active of *wollen*, the pluperfect subjunctive passive of *empfehlen*.

10 Write the principal parts of *riechen*, *blasen*, *zwingen*, *preisen*, *besitzen*.

11 Write (*a*) the synopsis of *sehen* in the third person singular of the subjunctive active, (*b*) the participles and the infinitives of *bleiben*.

12 Translate into German: (*a*) It is he, (*b*) three times a week, (*c*) on horseback, (*d*) ten feet high, (*e*) the sooner the better, (*f*) four cups of tea, (*g*) both of us, (*h*) just as pretty as this, (*i*) such a man, (*j*) at the right time.

13 Rewrite the following sentences, changing the voice (not the tense) of each verb and making the other necessary changes: (*a*) Der Jüngling hat der alte Frau einen Fisch gegeben, (*b*) Der unartige Knabe wird gescholten werden, (*c*) Was that die Königin als sie die Nachricht erhielt?

14 Write and translate original German sentences containing *three* of the following: (*a*) an absolute superlative, (*b*) a verb with factitive object, (*c*) an adjective followed by the genitive, (*d*) a noun having no singular form, (*e*) a dependent clause introduced by an interrogative word.

15 Write from memory and translate 10 consecutive lines of *one* of the following: *Die Grenadiere*, *Der Handschuh*, *Die Hoffnung*, *Wunsch*.

University of the State of New York

High School Department

180TH EXAMINATION

GERMAN—Second Year

Monday, January 25, 1904—9.15 a. m. to 12.15 p. m., only

Answer questions 7 and 8 and eight of the others but no more. *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

DAS KALTE HERZ

Frau Lisbet stürzte zu seinen Füſsen und bat um Verzeihung, aber das steinerne Herz kannte kein Mitleid, er drehte die Peitsche um, die er in der Hand hielt, und schlug sie mit dem Handgriff von Ebenholz so heftig vor die schöne Stirne, daſs sie leblos dem alten Manne in die Arme sank. Als er dies sah, war es doch, als reute ihn die That auf der Stelle; er bückte sich herab, zu schauen, ob noch Leben in ihr sei; aber das Männlein sprach mit wohlbekannter Stimme: "Gieb dir keine Mühe, Kohlenpeter; es war die schönste und lieblichste Blume im Schwarzwald, aber du hast sie zertreten und nie mehr wird sie wieder blühen."—*Hauff*

Peitsche=whip, *Ebenholz*=ebony

3–4 Translate into English:

EINE WEIHNACHTSGESCHICHTE

Er ist nicht mehr im Urwald, er ist in den Straſsen seiner Vaterstadt. Wie der Schnee in der Wintersonne funkelt, und wie die Leute drängen in den Straſsen! Und die holde Gestalt, die dort so leicht vor ihm hinschreitet, kennt er sie nicht? Jetzt wendet sie sich um. Da ist es ja, das liebe Antlitz, mit den sanften treuen Augen, um das die hellblonden Haare sich wie ein lichter Glorienschein schmiegen. Ob sie wohl an ihn denkt? "Rosen blühn und vergehn, wir werden das Christkind sehn," flüstert sie. Aber warum weint sie dabei?—*Stökl*

Urwald=primeval forest, *Glorienschein*=halo

5–6 Translate into English:

HERMANN UND DOROTHEA

Herrlich glänzte der Mond, der volle, vom Himmel herunter;
Nacht war's, völlig bedeckt das letzte Schimmern der Sonne.

Und so lagen vor ihnen in Massen gegeneinander
Lichter, hell wie der Tag, und Schatten dunkeler Nächte.
Und es hörte die Frage, die freundliche, gern in dem Schatten
Hermann des herrlichen Baums, am Orte, der ihm so lieb war,
Der noch heute die Thränen um seine Vertriebne gesehen.
Und indem sie sich nieder ein wenig zu ruhen gesetzet,
Sagte der liebende Jüngling, die Hand des Mädchens ergreifend:
Lafs dein Herz dir es sagen und folg ihm frei nur in allem.
—*Goethe*

7 Translate into German: (*a*) He has not yet found the knife that he lost last week, (*b*) It snows, therefore I must stay at home today, (*c*) He is not capable of such a deed, (*d*) I should like to do it if I had more time, (*e*) War threatens that country.

8 Translate into German: (*a*) It was impossible for me to visit her then, (*b*) He accused the servant of theft, (*c*) I do not know him and I do not know what his name is, (*d*) Since you are my friend you will tell me the truth, (*e*) What will become of him?

9 Conjugate, in the singular, the present indicative active of *empfangen*, the imperfect indicative active of *anziehen*, the imperfect subjunctive of *können*. Write the participles and the infinitives of *schlafen*.

10 Write the synopsis of *befehlen* in the third person singular of the indicative and subjunctive passive.

11 Decline, throughout, the German for *their nearest neighbor*, *the same village*.

12 Translate into English: (*a*) Er wollte eben ihr Hilfe leisten, (*b*) Sie sprangen in die Höhe, (*c*) Daraus wird nichts, (*d*) Er umgeht die Frage, (*e*) Was liegt dir daran?

13 Change the direct quotations in the following into indirect discourse: (*a*) Er sagte: "Es war die schönste Blume im Schwarzwald, aber du hast sie zertreten, Peter, und nie mehr wird sie blühen," (*b*) Er fragt die Frau, "Gehst du morgen ab?"

14 Mention 10 verbs (not auxiliaries) that may be followed by a dependent infinitive without *zu*. Write and translate original German sentences containing *three* of the verbs mentioned.

15 Write from memory and translate *Wandrers Nachtlied* or 10 consecutive lines of *one* of the following: *Barbarossa*, *Die Hoffnung*, *Erlkönig*.

University of the State of New York

High School Department

182D EXAMINATION

GERMAN—Second Year

Monday, June 13, 1904—9.15 a. m. to 12.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

KLOSTERGLOCKEN

Während dieser Erzählung ist die feurige Sonnenkugel verschwunden; die Dämmerung bricht rasch herein und breitet ihre Schatten von einem Ufer des Sees zum andern. Schon ist das kleine Fahrzeug an der ersten Insel vorbeigeflogen und deutlich winken von der zweiten die grauen Klostertürme freundliche Grüſse von der nahen Heimat. Da wogt und wallt es plötzlich von den beschneiten Bergen hernieder zum Thale; geisterhafte Gestalten mit wehenden Nebelschleiern nahen in langen, endlosen Zügen. Besorgt blickt das Auge des erfahrenen Schiffers den Unholden entgegen, und eiliger fallen seine Ruderschläge, um das ihm anvertraute Kind und sich selbst in Sicherheit zu bringen.—*Meiſsner*

Fahrzeug=boat, *Schleier*=veil, *Unhold*=monster

3–4 Translate into English:

DER FLUCH DER SCHÖNHEIT

Amos Haselborn aber ward sofort aus der lateinischen Schule genommen: die Mutter meinte, lieber solle er das Studieren lassen, als daſs das arme Kind länger dem Neide des häſslichen Rektors preisgegeben sei. Veränderungslustig, wie er war, lieſs Amos sich das gern gefallen, nur ärgerte er sich über das einfältige Gerede, welches alsbald in der Stadt umlief; denn die Leute meinten, der schöne Schneiderssohn sei nicht eigentlich fortgegangen, sondern fortgejagt worden von der Schule, und das Gerücht dichtete hinzu: wegen einer Liebschaft mit des Schulmeisters Marthe.—*Riehl*

preisgeben = expose, *veränderungslustig* = fickle, *Gerücht* = rumor

5–6 Translate into English:

HERMANN UND DOROTHEA

Da durchschritt sie behende die langen, doppelten Höfe,
Lieſs die Ställe zurück und die wohlgezimmerten Scheunen,
Trat in den Garten, der weit bis an die Mauern des Städtchens

Reichte, schritt ihn hindurch und freute sich jegliches Wachstums,
Stellte die Stützen zurecht, auf denen beladen die Äste
Ruhten des Apfelbaums, wie des Birnbaums lastende Zweige,
Nahm gleich einige Raupen vom kräftig strotzenden Kohl weg;
Denn ein geschäftiges Weib thut keine Schritte vergebens.
Also war sie ans Ende des langen Gartens gekommen
Bis zur Laube mit Geiſsblatt bedeckt; nicht fand sie den Sohn da,
Eben so wenig als sie bis jetzt ihn im Garten erblickte.

Stütze=support, *Raupe*=worm, *Geiſsblatt*=honeysuckle

7 Translate into German: (*a*) The older and larger part of Dresden lies on the left bank of the Elbe, (*b*) I succeeded in finding the place, (*c*) He spoke to me though he did not know me, (*d*) They soon met the farmers going to market, (*e*) I can still remember him.

8 Translate into German: (*a*) I have received the letter you wrote last Thursday, (*b*) Instead of remaining at home he will visit a friend, (*c*) He was very tired, yet he finished his work, (*d*) Every girl likes to read a good story, (*e*) I know him to be a worthy man.

9 Conjugate, in the singular, the present indicative active of *erhalten*, the imperfect indicative of *steigen*, the imperfect subjunctive active of *genieſsen*, the perfect subjunctive of *sich einbilden*, the future perfect indicative passive of *zeigen*.

10 Give, with reason, the case of *each* of the italicized words in the following: (*a*) Aber friedlichen *Antlitzes* sank das arme Weib in das Kissen zurück, (*b*) Dieser Knabe ist seiner *Mutter* ähnlich, (*c*) Das Kind wurde *Johann* genannt, (*d*) Wir müssen fort noch diese *Nacht*, (*e*) Der Herr ist nicht der deutschen *Sprache* kundig.

11 Write and translate original German sentences of at least *six* words each, illustrating *three* uses of the subjunctive mode. State the use of the subjunctive that each sentence illustrates.

12 Write the imperative active and all the infinitives and participles, active and passive, of *tragen*, mentioning the name of each form given.

13 Write the principal parts of *reiten*, *stehen*, *aussehen*, *begleiten*, *erkennen*.

14 Translate into English: (*a*) Er gilt für braver als er ist, (*b*) Das Schiff ging mit Mann und Maus unter, (*c*) Hier sitzt er den ganzen geschlagenen Tag, (*d*) Die Zeit wird mir lang, (*e*) Ich verlor ihn aus den Augen.

15 Write from memory and translate 10 consecutive lines of *one* of the following: *Das Veilchen*, *Die Grenadiere*, *Barbarossa*, *Der Handschuh*.

High School Department

180TH EXAMINATION

GERMAN—Third Year

Monday, January 25, 1904—1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but no more. *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

MARIA STUART

Maria—Jetzt macht ein Ende, Schwester! Sprecht es aus,
Das Wort, um dessentwillen Ihr gekommen,
Denn nimmer will ich glauben, dafs Ihr kamt,
Um Euer Opfer grausam zu verhöhnen.
Sprecht dieses Wort aus! Sagt mir: "Ihr seid frei,
Maria! Meine Macht habt Ihr gefühlt,
Jetzt lernet meinen Edelmut verehren."
Sagt's, und ich will mein Leben, meine Freiheit
Als ein Geschenk aus Eurer Hand empfangen.
—Ein Wort macht alles ungeschehn. Ich warte
Darauf. O! lafst mich's nicht zu lang erharren!—*Schiller*

3–4 Translate into English:

NATHAN DER WEISE

Daja—Er kam, und niemand weifs woher.
Er ging, und niemand weifs wohin.—Ohn' alle
Des Hauses Kundschaft, nur von seinem Ohr
Geleitet, drang mit vorgespreiztem Mantel
Er kühn durch Flamm' und Rauch der Stimme nach,
Die uns um Hilfe rief. Schon hielten wir
Ihn für verloren, als aus Rauch und Flamme
Mit eins er vor uns stand, im starken Arm
Empor sie tragend. Kalt und ungerührt
Vom Jauchzen unsers Danks, setzt seine Beute
Er nieder, drängt sich unters Volk und ist—
Verschwunden!—*Lessing*

spreizen=spread out

5–6 Translate into English:

DIE VERLORENE HANDSCHRIFT

Die Dämmerung des Abends sank über das tiefe Thal; aus dem Wasser hob sich der Nebel, er schwebte langsam von Baum zu Baum nach der Höhe, er wogte und ballte sich und zog zwischen Ilse und dem Vaterhaus seine dämmrigen langen Schleier.

Ilse saſs am Stein des Einganges, die Hände über das Knie gefaltet, in ihrem hellen Gewande selbst einem Fabelweibe aus alter Zeit, einer Herrin der schwebenden Schatten vergleichbar. Sie blickte auf ihrer Uferseite entlang nach dem Bergweg, der von Rossau herführte. Da schallte dumpf durch den Nebel der ferne Schritt des Wanderers. "Er ist es," sagte Ilse leise; sie stand langsam auf, aber die kräftige Frau bebte und hielt sich an die Felsen.—*Freytag*

7 Translate into German: Then Hermann became the rescuer of German liberty. He had secretly called together the best of his race and taken counsel with them. All were agreed that there would be no safety for the Germans unless all the Romans who were in the land should be killed in one day.

8 Translate into German: One hot afternoon a nobleman took a walk in his garden and saw the gardener, who had not expected this visit, sleeping under a tree. He cried out angrily, "Scoundrel, you lie here instead of working; you do not deserve to have the sun shine on you." The gardener answered, "Therefore I have lain down in the shade."

9 Write and translate original German sentences of at least *six* words each, containing *five* of the following idioms: *Trotz bieten*, *im Begriff stehen*, *auf eigene Hand*, *bitten um*, *in Schrecken setzen*, *zu Falle kommen*, *sich anders besinnen.*

10 Write in German about 75 words on the life and works of Goethe *or* of Freytag.

11 Distinguish in meaning the words in the following pairs and write and translate original German sentences, using correctly each word: *Geschenk*, *Gabe; nimmer*, *nie; warten*, *harren; rufen*, *schreien; Gewand*, *Kleidung.*

12 Mention *five* uses of the subjunctive and illustrate each use by an original German sentence.

13 Write in German about 75 words, describing an incident that occurred during the holiday vacation.

14 Mention *four* nouns that have double plurals with different meanings. Write and translate original German sentences containing each plural of the nouns mentioned.

15 Write from memory and translate 10 consecutive lines of *one* of the following: *Der Sänger*, *Reiters Morgengesang*, *Mein Vaterland*, *Gesang der Geister über den Wassern.*

University of the State of New York

High School Department

182D EXAMINATION

GERMAN—Third Year

Monday, June 13, 1904—1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

DIE JUNGFRAU VON ORLEANS

Johanna—Und ich bin nicht so elend, als du glaubst.
Ich leide Mangel, doch das ist kein Unglück
Für meinen Stand; ich bin verbannt und flüchtig,
Doch in der Öde lernt' ich mich erkennen.
Da, als der Ehre Schimmer mich umgab,
Da war der Streit in meiner Brust; ich war
Die Unglückseligste, da ich der Welt
Am meisten zu beneiden schien.—Jetzt bin ich
Geheilt, und dieser Sturm in der Natur,
Der ihr das Ende drohte, war mein Freund,
Er hat die Welt gereinigt und auch mich.—*Schiller*

3–4 Translate into English:

IPHIGENIE AUF TAURIS

Iphigenie— Ach! ich sehe wohl,
Ich mufs mich leiten lassen wie ein Kind.
Ich habe nicht gelernt zu hinterhalten,
Noch jemand etwas abzulisten. Weh!
O weh der Lüge! sie befreiet nicht,
Wie jedes andre wahrgesprochne Wort,
Die Brust; sie macht uns nicht getrost, sie ängstet
Den, der sie heimlich schmiedet, und sie kehrt,
Ein losgedrückter Pfeil, von einem Gotte
Gewendet, und versagend, sich zurück
Und trifft den Schützen.—*Goethe*

versagen=miss

5–6 Translate into English:

EKKEHARD

Und allmählich ward ihm die Trübsal der letzten Vergangenheit in mildem Duft verklärt; er dachte an die Herzogin und alles, was auf dem hohen Twiel geschehen, es that ihm nimmer weh. Er hatte lange nicht auf die Tage seiner Jugend ückgeschaut, jetzt flüchtete sich sein Denken am liebsten dort-

hin, als wär' es ein Paradiesgarten, aus dem ihn der Sturm des Lebens hinausgeweht. Er hatte etliche Jahre in der Klosterschule zu Lorch am Rheine verbracht; damals ahnte er nicht, was in der Frauen dunkeln Augen für herzverzehrende Glut verborgen glimmt, die alten Pergamente waren seine Welt.

—*Scheff*

7 Translate into German: The human race has spread wherever a living being can thrive. Man is at home everywhere. Though he always loves his country and his native place, his nature gradually adapts itself to the region in which he lives. Wherever he is, he knows how to make his place of abode as comfortable as possible.

8 Translate into German: Without waiting for a command the robbers turned to the left into the forest. They wished to plunder, not to fight, and when, therefore, they saw a little troop of soldiers coming from the town, the whole gang broke up in wild flight. Their prisoner then succeeded in escaping his guards.

9 Write the synopsis of *hinauswerfen* in the third person singular of the indicative, subjunctive and conditional passive.

10 Write in German about 75 words on the life and works of Klopstock *or* of Uhland.

11 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *Unglück, befreien, verführen, aufserordentlich, sinnreich.*

12 Write and translate original German sentences illustrating *three* of the following: (*a*) predicate genitive, (*b*) dative of interest, (*c*) accusative absolute, (*d*) present indicative used for an imperative, (*e*) potential subjunctive.

13 Write in German a letter of about 75 words, describing a day spent in the country or in a city park.

14 Translate into English: (*a*) Das Reich ist zu Grunde gegangen, (*b*) Er sollte sich den Umstand zu Nutze machen, (*c*) Hier geht alles drunter und drüber, (*d*) Er besteht auf seinem Kopfe, (*e*) Die Sache ist ganz eingeschlafen, (*f*) Er läfst gern mit sich handeln, (*g*) Es geht gewifs nicht richtig damit zu, (*h*) Sie will es selbst gesehen haben, (*i*) Es ist um ihn geschehen, (*j*) Man kann es mit den Händen greifen.

15 Write from memory and translate 10 consecutive lines of *one* of the following: *Gebet während der Schlacht, Der Schnitter Tod, Der Fischer, Belsazar.*

High School Department

180TH EXAMINATION

SPANISH — First Year

Tuesday, January 26, 1904 — 1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

LA PALOMA DE MANUEL

Un día que Manuel Roca fué al campo á buscar frutas, encontró una paloma con un ala partida. Se la llevó á casa y ligó cuidadosamente el ala, uniéndola bien al cuerpo. En pocos días la paloma sanó y pudo volar otra vez; mas no quiso abandonar la casa de Manuel porque se había vuelto muy mansa. Manuel estaba muy satisfecho al ver que la paloma no quería dejarle, pues este era el único animalito que había en la casa y su madre no podía comprarle juguetes. Cuando él salía á buscar frutas, allá también iba la paloma posada en su hombro.

paloma=dove, *ligar*=bind, *manso*=tame, *juguete*=toy

3–4 Translate into English:

SIR WALTER RALEIGH

Habiendo Sir Walter pesado una cantidad de tabaco suficiente para llenar su pipa, se presentó con ella ante la reina de Inglaterra, y cuando el humo subía caracoleando de su boca, ofreció apostar con su majestad á que podía pesar el humo. Isabel aceptó la propuesta, y Sir Walter concluyó tranquilamente de fumar su pipa; entonces vació las cenizas, las pesó, y sustrayendo su resultado de la cantidad de tabaco puesto al principio, dedujo á la reina la suma neta y exacta del peso del humo. Isabel pagó la apuesta, y aprendió á su costa que la materia es indestructible.

caracolear=curl, *apostar*=wager, *ceniza*=ashes

5–6 Translate into English:

LA IDEA DE COLÓN

Por la misma época había un marino llamado Cristóbal Colón que trataba de hacer creer á las gentes que el mundo era re-

dondo, y que para llegar á la India, todo lo que tenía que hacer era navegar hacia poniente, en vez de hacer un largo viaje por tierra hacia oriente. Colón no tenía idea del verdadero tamaño del mundo, y creyó era mucho menor de lo que realmente es. Estaba casi seguro de que siguiendo su plan, podía llegar á la India en menos de la mitad del tiempo que se necesitaba para recorrer el camino ya conocido.

poniente=west, *tamaño*=size

7 Translate into Spanish: (*a*) I was speaking with your brother when my father entered the room, (*b*) Everybody likes to come here in the evening, (*c*) Come back into the house, (*d*) What do you wish to buy? (*e*) Is it ten minutes before nine already?

8 Conjugate the following in the singular: *hacer* in the present indicative active, *estar* in the preterit (past definite or aorist) indicative; the following in the plural: *darse* in the present indicative, *ver* in the present subjunctive active.

9 Write in Spanish the cardinal and the ordinal numerals from eleven to twenty inclusive. [Do not use figures]

10 Write the feminine of *hermoso*, *grande*, *feliz*, *inglés*. Give the irregular comparison and the absolute superlative of *bueno*, *malo*, *grande*.

11 Write all the possessive pronouns.

12 State *three* rules for the position of adjectives, illustrating each rule by an original Spanish sentence.

13 Translate into English: (*a*) Mi ventana da al campo, (*b*) Me duele la cabeza, (*c*) Más valiera algo que nada, (*d*) Volverá á escribir la carta, si se lo mando, (*e*) No se podía tener en pie.

14 Write the third person plural of the simple (uncompounded) tenses of the indicative and subjunctive active of *partir*.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *Crepúsculo*, *El asno y el caballo*, *Las dos tumbas*, *¿Quién menoscaba mis bienes?*

High School Department

182D EXAMINATION

SPANISH—First Year

Tuesday, June 14, 1904—1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but no more. *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

LA FELICIDAD DE POLÍCRATES

Polícrates resolvió interrumpir por sí mismo el curso de su felicidad. Tenía una riquísima sortija de oro con una esmeralda de gran valor. Se quitó del dedo la sortija, y subiendo á una torre muy alta, la arrojó sin titubear al mar. Pensó que de ese modo habría de sufrir algo y así satisfaría la necesidad de tener algún disgusto en la vida. Mas la fortuna no aceptó este sacrificio, y Polícrates fué más feliz que nunca. Un pez se tragó la sortija; cayó poco después en la red de un pescador, y fué llevado á palacio para ser servido en la mesa del rey.

sortija=ring, *titubear*=hesitate, *pez*=fish, *red*=net

3–4 Translate into English:

LEVÁNTATE

¡Vaya! ¿Duermes todavía, Guillermo? ¡Levántate! No es bueno permanecer acostado tanto tiempo. Ya es tarde. Hace mucho tiempo que amaneció. El sol está muy alto. ¡Qué dormilón eres! ¿No sabes que el levantarse temprano es provechoso á la salud? ¡Ah! sí, y no sólo á la salud, sino también á la hacienda, y lo que es aún mejor, á la ciencia; por esta razón el proverbio inglés dice que quien se acuesta temprano y temprano se levanta, se hace sano, rico y sabio.

—Mas tenga Vd. la bondad de decirme qué hora es.—Con mucho gusto, hijo mío. Son las ocho-ménos cuarto.

acostar=lie, *amanecer*=dawn, *dormilón*=sleepyhead, *provechoso*=beneficial, *hacienda*=wealth

5–6 Translate into English:

EL CONDE FERRANT GONZÁLEZ

Cuando el conde Ferrant González llegó á casa después de la batalla de Hacinas, le dijeron que otro ejército de sus enemigos

estaba ya cerca. El conde estaba dispuesto á marchar contra ellos, pero sus capitanes le persuadieron, diciendo.—Estamos todavía enfermos y cansados y necesitamos descanso; no tenemos fuerzas para pelear con ellos. Les contestó su señor. Con las heridas que recibiréis en esta batalla no pensaréis en las llagas de la batalla anterior. Después de estas palabras los soldados le siguieron; arremetió á sus enemigos y los venció en la batalla. Tal era el carácter de los Españoles del tiempo antiguo y así ganaron las victorias sobre sus enemigos.

pelear=fight, *llaga*=wound, *arremeter*=attack

7 Translate into Spanish: (*a*) Spain is a very rich and beautiful country, (*b*) He is the greatest man that there is in these times, (*c*) Toward night the enemy suddenly appeared, (*d*) The table was placed in the other room, (*e*) Come with me.

8 Conjugate the following in the plural: *llegar* in the imperfect indicative active, *ser* in the preterit (past definite or aorist) indicative, *vivir* in the future indicative, *amarse* in the present subjunctive.

9 State, with illustrations, *three* rules for the formation of adverbs.

10 Distinguish between the following: *amare* and *amaré*, *sonar* and *soñar*, *se* and *sé*, *el* and *él*, *aun* and *aún*.

11 Give the reason for the position of *each* of the adjectives in the following: *la dulce miel*, *una rosa blanca*, *la lengua castellana*, *la hora convenida*, *una mesa redonda*.

12 Write the plural of *acción*, *casa*, *verdad*, *gentilhombre*; the feminine plural of *francés*, *español*, *grandote*.

13 Mention *five* cases in which the Spanish uses the definite article where the English omits it.

14 Write the gerund and the past participle of *poner*, *seguir*, *venir*, *decir*, *contar*.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *La ramilletera ciega*, *Crepúsculo*, *Sacudí*, *Las dos tumbas*.

University of the State of New York

High School Department

180TH EXAMINATION

SPANISH—Second Year

Thursday, January 28, 1904—1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–2 Translate into English:

EL CAPITÁN VENENO

Poco tardaron en conocer las caritativas hembras que el gallardo capitán no estaba muerto, sino meramente privado de conocimiento y sentidos, por resultas de un balazo que le había dado de refilón en la frente, sin profundizar casi nada en ella. Conocieron también que tenía atravesada y acaso fracturada la pierna derecha, y que no debía descuidarse ni por un momento aquella herida, de la cual fluía mucha sangre. Conocieron, en fin, que lo único verdaderamente útil y eficaz que podían hacer por el desventurado, era llamar en seguida á un facultativo.—*Alarcón*

refilón=obliquely, *descuidar*=neglect, *facultativo*=physician

3–4 Translate into English:

EL PÁJARO VERDE

Cuarenta días y cuarenta noches estuvieron los sabios reunidos, sin cesar de meditar y disertar sino para dormir un poco y alimentarse. Pronunciaron muy doctos y elocuentes discursos, pero nada averiguaron.—Señor, dijeron al cabo todos ellos al rey, postrándose humildemente á sus pies é hiriendo el polvo con las respetables frentes, somos unos mentecatos; haz que nos ahorquen; nuestra ciencia es una mentira: ignoramos quién sea el pájaro verde, y sólo nos atrevemos á sospechar si será acaso el ave fénix del Arabia.

—Levantaos, contestó el rey con notable magnanimidad, yo os perdono y os agradezco la indicación sobre el ave fénix.—*Valera*

herir=strike, *mentecato*=fool, *ahorcar*=hang

5–6 Translate into English:

MARIANELA

El discreto Golfín se sentó tranquilamente, como podría haberlo hecho en el banco de un paseo, y ya se disponía á fumar, cuando sintió una voz . . . sí, indudablemente era una voz humana que lejos sonaba, un quejido patético, mejor dicho, melancólico canto, formado de una sola frase, cuya última cadencia se prolongaba aplanándose en la forma que los músicos llaman *morendo*, y que se apagaba al fin en el plácido

silencio de la noche, sin que el oído pudiera apreciar su vibración postrera.

Vamos—dijo el viajero lleno de gozo—ese es el canto de una muchacha: sí, es voz de mujer, y voz preciosísima.

—*Pérez Galdós*

quejido=complaint

7 Translate into Spanish: (*a*) His hands are as white as yours, (*b*) He is not very old but he has had considerable experience, (*c*) If you wish to go riding, here is a fine horse, (*d*) Let us try to do better, (*e*) How much was paid for it?

8 Translate into Spanish: (*a*) Every three months the children go to the country for a week, (*b*) Allow me to thank you, (*c*) I doubt whether there is a man that equals him, (*d*) They are almost there, (*e*) He has broken his arm.

9 Write the third person plural of each of the simple (uncompounded) tenses of the indicative and subjunctive active of *conocer*.

10 Explain the use of *each* of the following, giving an example of each: possessive pronoun, demonstrative pronoun, relative pronoun, interrogative pronoun, indefinite pronoun.

11 Translate into English:

Muy Sr. mío:

Somos favorecidos con su apreciable carta fha. 15 de nov^{e}. pp^{do}., como también de la libranza de f. 1200 girada en Nueva York el mismo día por los Sres. Bauer y Cía á/c de su casa de París, n/orden y 3 días vista.

12 Give *two* uses of the present indicative tense (other than that expressing present time); *three* uses of the imperfect indicative tense. Illustrate each use mentioned by an original Spanish sentence.

13 Translate into Spanish: (*a*) His father and mother are both large, (*b*) The hands and feet of this people are small, (*c*) The English generals and admirals are here already, (*d*) They admire American ideas and education, (*e*) They were known everywhere as the good king and queen.

14 Write the principal parts (primitive tenses) of *defender*, *pensar*, *salir*, *caer*, *mover*.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *El Español*, *Firmeza*, *Hoy como ayer, mañana como hoy*, *Imagen espantosa de la muerte*.

University of the State of New York

High School Department

182D EXAMINATION

SPANISH—Second Year

Thursday, June 16, 1904—1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but* no more.** ***If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1–2 Translate into English:

EL COMENDADOR MENDOZA

El comendador sabía y estimaba cuanto vale el dinero. La vanidad de haberle adquirido honradamente le daba para él mayor hechizo. ¿Pero en qué mejor podía emplearse el caudal, la ganancia de toda una vida activa, el fruto del brío, del trabajo y del ingenio, que en salvar á un sér tan querido y que tan digno era de serlo? Suponiéndose ya el comendador despojado de cuatro millones, se miraba reducido á la triste condición de un hidalgo labriego, que ó tendría que salir otra vez á buscar fortuna, ó tendría que acomodarse á vivir mal y humildemente en Villabermeja. Esto no le arredró.—*Valera*

hechizo = satisfaction, *caudal* = wealth, *labriego* = peasant, *arredrar* = terrify

3–4 Translate into English:

GIL BLAS

Mira, hijo, me dijo un día, yo no soy de aquellos amos ingratos y duros que dejan envejecer á los criados sin pasarles por el pensamiento el recompensar sus servicios. Estoy contento contigo, te quiero; y, sin aguardar á que me hayas servido más tiempo, es mi ánimo hacerte dichoso. Ahora mismo te voy á descubrir lo más sutil del saludable arte que profeso tantos años ha. Los demás médicos piensan consiste en el estudio penoso de mil ciencias tan inútiles como dificultosas: yo intento abreviar un camino tan largo. Sábete, amigo, que para curar todo género de males no es menester más que sangrar y hacer beber agua caliente.—*Le Sage* (*Padre Isla's translation*)

envejecer = grow old

5–6 Translate into English:

JOSÉ

Las tabernas estaban, como siempre á tal hora, atestadas de gente: por sus puertas abiertas se escapaba la luz y rumor confuso y desagradable de voces y juramentos: nuestros amigos se alejaban de ellas cuanto podían para no ser notados. El pobre José iba temblando de miedo: él, tan sereno y tan bravo ante los golpes de mar, sentía encogérsele el corazón y doblársele las piernas al imaginar cómo se pondría la maestra viéndose burlada. Más de veinte veces estuvo para huir, dejar que aquellos señores desempeñasen su tarea solos; pero siempre le detenía la idea de que Elisa iba á necesitar de su presencia para animarse.—*Valdés*

atestar = crowd, *desempeñar* = accomplish, *tarea* = task

7 Translate into Spanish: (*a*) If you desire to obtain any of them you should ask some one in authority, (*b*) Not only is the sky not clear, but it will rain again in a few minutes, (*c*) That was two years ago, (*d*) She is fatigued, (*e*) Come in.

8 Translate into Spanish: (*a*) They allowed us to pass through the great, high gates, (*b*) Gold is more precious than silver, (*c*) This house is quite two hundred years old, (*d*) It seems to us that our sons and daughters are the best in the world.

9 Explain the use of *each* of the following, giving an illustration in each case: personal accusative, the pleonastic (expletive or redundant) construction of the object personal pronoun, the neuter personal pronouns, the gerund with *estar*, the absolute superlative.

10 State the difference in use of *tú*, *vos*, *vosotros*, *usted* and *ustedes*. Write and translate a Spanish sentence illustrating the use of each.

11 Give rules for the agreement of adjectives.

12 Translate into Spanish: bill of exchange, promissory note, account sales, check, at 30 days sight, from this date, commission, bill of lading, list, value received.

13 Write the feminine of *el león*, *el rey*, *el actor*, *el joven*, *el emperador;* the masculine of *la mujer*, *la tía*, *la condesa*, *la heroína*, *la yegua*.

14 Write the principal parts (primitive tenses) of *andar*, *destruir*, *soltar*, *perder*, *morir*.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *El Español*, *Imagen espantosa de la muerte*, *Hymne de Riego*, *¡Qué hermoso es ver el día!*

University of the State of New York

High School Department

180TH EXAMINATION

SPANISH—Third Year

Tuesday, January 26, 1904—1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but* no more. *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1–2 Translate into English:

DON QUIJOTE

¡Dichosa edad y siglos dichosos aquellos á quien los antiguos pusieron nombre de dorados, y no porque en ellos el oro, que en esta nuestra edad de hierro tanto se estima, se alcanzase sin fatiga alguna, sino porque entonces los que en ella vivían ignoraban estas dos palabras de tuyo y mío! Eran en aquella santa edad todas las cosas comunes: á nadie le era necesario para alcanzar su ordinario sustento tomar otro trabajo que alzar la mano, y alcanzarle de las robustas encinas que liberalmente les estaban convidando con su dulce y sazonado fruto. Las claras fuentes y corrientes ríos trasparentes aguas les ofrecían.

encina=evergreen oak —*Cervantes*

3–4 Translate into English:

RONCESVALLES

La crítica histórica, esa incrédula hija del espíritu de nuestra época, nos ha infiltrado desde niños su petulante osadía, nos ha enseñado á sonreirnos de compasión al oir el relato de esas tradiciones, que eran el brillante cimiento de nuestros anales patrios, y desnudando uno por uno á nuestros héroes nacionales de las espléndidas galas con que los vistiera la fantasía popular, empañando con su hálito de duda la brillante aureola que ceñía sus sienes y derribándolos del pedestal en que los colocó la leyenda, nos ha mostrado su descarnada armazón, semejante á un maniquí risible. Ella nos ha truncado la historia, nos niega á Bernardo del Carpio, nos disputa al Cid.—*Bécquer*

cimiento=foundation, *sien*=temple, *armazón*=skeleton, *maniquí*=manikin

5–6 Translate into English:

ESPAÑA Y PORTUGAL

Las más importantes verdades se reconocen por sentimiento y por instinto antes de que por medio del raciocinio se demues-

tre la certidumbre de ellas y se declare y explique el fundamento en que se apoyan y sostienen. En este número de verdades se cuenta la de que en la Península que habitamos hay dos naciones distintas, portuguesa y española. Si hubiera dos estados y una sola nación, los estados fácilmente se fundirían. Lo difícil, lo punto menos que imposible, es fundir las nacionalidades. Así es que nosotros, aunque siempre hemos tenido un amor á la idea de la unión ibérica, mas hemos creído que esta idea es casi irrealizable.—*Valera*

fundir = fuse

7 Translate into Spanish: I believe that dramas ought to be written in verse. It was in verse that the first attempts of our dramatists of the Middle Ages saw the light and till the last few years of the eighteenth century there were no prose dramas in our theaters.

8 Translate into Spanish: How priceless everything seems that brings to us remembrance of our native country. I have felt this often, and when, wandering through the streets of foreign cities, I have heard some one speak the language of my country, my heart has leaped with pleasure.

9 Write the second person singular of the simple (uncompounded) tenses of the indicative and subjunctive active of *discernir;* the second person singular and plural of the imperative active of *pedir;* the gerund and the past participle of *creer.*

10 Mention *two* augmentative suffixes and *three* diminutive suffixes. Form a word with each suffix mentioned and show how the suffix has affected the meaning of the original word.

11 Write in Spanish about 75 words on the life and works of *one* of the following: Alfonso *el sabio*, Cervantes, Alarcón.

12 Define and illustrate assonance, blank verse, hiatus, masculine rime, octosyllabic verse.

13 Mention the demonstrative adjectives and explain the use of each, including the use of the neuter forms.

14 Write in Spanish about 75 words describing the view from your window.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *Alhambra*, *Cupido*, *El sueño*, *A la patria*.

University of the State of New York

High School Department

182D EXAMINATION

SPANISH—Third Year

Tuesday, June 14, 1904—1.15 to 4.15 p. m., only

Answer questions 7 and 8 and eight of the others but **no more.** *If more than eight of the others are answered only the first eight answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1-2 Translate into English:

DON QUIJOTE

Y así fatigado deste pensamiento, abrevió su limitada cena, la cual acabada, llamó al ventero, y encerrándose con él en la caballeriza, se hincó de rodillas ante él diciéndole: no me levantaré jamás de donde estoy, valeroso caballero, hasta que la vuestra cortesía me otorgue un don que pedirle quiero, el cual redundará en alabanza vuestra y en pro del género humano. El ventero, que vió á su huésped á sus pies y oyó semejantes razones, estaba confuso mirándole sin saber qué hacerse ni decirle, y porfiaba con él que se levantase, y jamás quiso hasta que le hubo de decir que él le otorgaba el don que le pedía.

—*Cervantes*

otorgar=grant, *alabanza*=glory, *en pro*=to the benefit, *porfiar*=contend

3-4 Translate into English:

PARTIR Á TIEMPO

Cosme—¡Voto va! él no gasta palabra; no dice frases, no dice nada; pero allá en sus adentros ya sé yo que nos quiere . . . á los dos. Mientras yo he estado malo, él se ha puesto á dirigir la casa; y aunque no era esa su carrera, lo hacía mejor que yo; mejor: al cabo tiene sobre mí la ventaja de la poca edad, de la actividad . . . ¡y qué celo! Pues ¿y para contigo? no digo nada. Siempre á tus órdenes: se dejaría él matar por alcanzarte un billete para la ópera ó para un baile. Y eso, eso es lo que necesitamos para ser felices. Está resuelto; y supuesto que hemos hablado de esto, hoy mismo es preciso que empieces á darle á conocer nuestros planes.—*Larra*

5-6 Translate into English:

LAMENTACIÓN DE BYRON

¡Mas, ay! ¿Qué valen mis cansadas quejas?
Con mis vanos lamentos ¿qué consigo?

Viejo es el mundo, sus desdichas viejas,
Y en sus crímenes lleva su castigo.—
Nunca, tedio mortal, nunca me dejas:
Donde quiera que voy tú vas conmigo,
Y no sé resistir cuando me envías
Noches sin sueño y fatigosos días.
¡Días de horrible laxitud! El cielo
Trasparente y azul me causa enojos,
Cubre la tierra insoportable velo
Y el llanto anubla sin razón mis ojos.—*Núñez de Arce*

tedio=disgust, *llanto*=flood of tears

7 Translate into Spanish: Many have censured Bécquer for the novelty of his style and many have tried to imitate it; none have had a very good idea of it. For it is not that of finished poetry but of thoughts as first formed and written down.

8 Translate into Spanish: To learn the grammar and syntax of a foreign language, at the end instead of at the beginning, is precisely the course of nature. It is learning that language in the very way in which we learned our own.

9 Write the third person singular of *each* of the tenses of the indicative and subjunctive active of *valer*. Write the present imperative active of *valer*.

10 Write in Spanish about 75 words on the life and works of *one* of the following: Lope de Vega, Leandro Fernández de Moratín, Campoamor.

11 Show how ambiguity arises in the use of possessive pronouns and explain how such ambiguity may be avoided.

12 Mention the orthographic changes that take place in the inflection of verbs whose infinitives end in *guar*, *cer* (preceded by a consonant), *gir*, *ñir*, *eer*. Illustrate in each case.

13 Write in Spanish about 75 words on *either* the Panama canal *or* the Erie canal.

14 Write the regular and the irregular past participle of *atender*, *bendecir*, *comprender*, *salvar*, *poseer*.

15 Write from memory and translate at least 10 consecutive lines of *one* of the following: *A la esperanza*, *Los defensores de la patria*, *Cupido*, *El sueño*.

High School Department

180TH EXAMINATION

GREEK—First Year

Thursday, January 28, 1904—9.15 a. m. to 12.15 p. m., only

Answer question 15 and nine of the others but no more. *If more than nine of the others are answered only the first nine answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define and illustrate *each* of the following: enclitic, ν movable, oxytone, liquid verb. Mention the double consonants.

2 Write the contracted form of *each* of the following: τιμάειν, γένεα, δηλόομαι, ποιέοιμι, φιλέομεν. Compare ἀγαθός, μικρός, ἄξιος, ἀληθῶς, καλῶς.

3 Decline, in singular and plural, νύξ, ὁπλίτης, δένδρον, εὖρος, οἰκία.

4 Give the stem of *each* of the following nouns and account for the euphonic change in each: ἀσπίσι, ὄρνις, φύλαξ. Give the rule for the euphonic change in ἀφίημι, συμβουλεύω.

5 Decline οὐδείς in the singular, all genders; σύ in the plural; πᾶς in singular and plural, all genders.

6 Decline ἀγαθὸς παῖς in the singular; μέγα στράτευμα in the plural; αὕτη ἡ ὁδός in singular and plural.

7 Conjugate ἵημι in the present subjunctive active; ἄρχω in the future indicative middle; βάλλω in the aorist optative passive.

8 Write the first form of λύω in all modes, including participle, of the perfect middle. Write all the active infinitives of πράττω.

9 Translate into Greek:

a All the villages through which we marched were hostile to us.

b The army besieged the city both by land and by sea.

c If he comes we shall see him.

d We ought to obey our general.

e Who are braver than the Greeks?

10 Translate into English:

Μένων μὲν ἐκέλευσε τοὺς αὑτοῦ στρατιώτας διαβῆναι τὸν ποταμὸν πρὶν δῆλον εἶναι τί οἱ ἄλλοι ποιήσουσιν. οἱ δὲ ἐπείθοντο καὶ διέβησαν. Κῦρος οὖν ἥσθη καὶ ἔπεμψε Μένωνι δῶρα πολλά.

Μένων=Menon (a Greek general), ἥσθη=was pleased

11 Give the reason for the case of ὑστεραίᾳ, Παφλαγόνων, στρατιώταις. From what verb is *each* of the following and where is the form found: ἤγαγον, ᾤχοντο?

12 Mention *three* uses (not found on this paper) of the genitive case after nouns and illustrate *two* of these uses by original Greek sentences.

13 Translate into English:

Οἱ δὲ ἄλλοι ἐπορεύοντο ἐπὶ τὸ χωρίον ἀφ' οὗ τῇ προτεραίᾳ οἱ βάρβαροι ἐτρέφθησαν· ἐνταῦθα γὰρ οἱ πολέμιοι τεταγμένοι ἦσαν. τοὺς μὲν οὖν πελταστὰς οἱ βάρβαροι ἐδέξαντο καὶ ἐμάχοντο, ἐπειδὴ δὲ οἱ ὁπλῖται ἐγγὺς ἦσαν, ἐτρέποντο.

δέχομαι = await

14 Write original Greek sentences illustrating *three* of the following: possessive pronoun, intensive pronoun, future less vivid condition, temporal clause, circumstantial participle.

15 Translate into Greek:

a I am afraid that this man will kill himself.

b On that day a messenger announced that the enemy had taken the city.

c Let us not injure a friend.

d If any one knows this, let him speak.

University of the State of New York

High School Department

180TH EXAMINATION

XENOPHON'S ANABASIS

Tuesday, January 26, 1904 — 1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a THE SOLDIERS RESOLVE TO FOLLOW CYRUS

Ἔδοξε ταῦτα, καὶ ἄνδρας ἑλόμενοι σὺν Κλεάρχῳ πέμπουσιν οἳ ἠρώτων Κῦρον τὰ δόξαντα τῇ στρατιᾷ. ὁ δ' ἀπεκρίνατο ὅτι ἀκούει Ἀβροκόμαν ἐχθρὸν ἄνδρα ἐπὶ τῷ Εὐφράτῃ ποταμῷ εἶναι, ἀπέχοντα δώδεκα σταθμούς· πρὸς τοῦτον οὖν ἔφη βούλεσθαι ἐλθεῖν· κἂν μὲν ᾖ ἐκεῖ, τὴν δίκην ἔφη χρῄζειν ἐπιθεῖναι αὐτῷ, ἢν δὲ φύγῃ, ἡμεῖς ἐκεῖ πρὸς ταῦτα βουλευσόμεθα. ἀκούσαντες δὲ ταῦτα οἱ αἱρετοὶ ἀγγέλλουσι τοῖς στρατιώταις· τοῖς δὲ ὑποψία μὲν ἦν ὅτι ἄγει πρὸς βασιλέα, ὅμως δὲ ἐδόκει ἕπεσθαι. προσαιτοῦσι δὲ μισθόν· ὁ δὲ Κῦρος ὑπισχνεῖται ἡμιόλιον πᾶσι δώσειν οὗ πρότερον ἔφερον, ἀντὶ δαρεικοῦ τρία ἡμιδαρεικὰ τοῦ μηνὸς τῷ στρατιώτῃ.— 1, 3

b CLEARCHUS HOLDS AN INTERVIEW WITH TISSAPHERNES

Ἔδοξεν οὖν τῷ Κλεάρχῳ συγγενέσθαι τῷ Τισσαφέρνει καὶ εἴ πως δύναιτο παῦσαι τὰς ὑποψίας πρὶν ἐξ αὐτῶν πόλεμον γενέσθαι· καὶ ἔπεμψέ τινα ἐροῦντα ὅτι συγγενέσθαι αὐτῷ χρῄζει. ὁ δὲ ἑτοίμως ἐκέλευεν ἥκειν.

Ἐπειδὴ δὲ συνῆλθον, λέγει ὁ Κλέαρχος τάδε. Ἐγώ, ὦ Τισσαφέρνη, οἶδα μὲν ἡμῖν ὅρκους γεγενημένους καὶ δεξιὰς δεδομένας μὴ ἀδικήσειν ἀλλήλους· φυλαττόμενον δὲ σέ τε ὁρῶ ὡς πολεμίους ἡμᾶς καὶ ἡμεῖς ὁρῶντες ταῦτα ἀντιφυλαττόμεθα.— 2, 5

c XENOPHON ADDRESSES THE ASSEMBLED OFFICERS

Ἡμῖν δέ γε οἶμαι πάντα ποιητέα ὡς μήποτε ἐπὶ τοῖς βαρβάροις γενώμεθα, ἀλλὰ μᾶλλον ἐκεῖνοι ἐφ' ἡμῖν. εὖ τοίνυν ἐπίστασθε ὅτι ὑμεῖς τοσοῦτοι ὄντες ὅσοι νῦν συνεληλύθατε μέγιστον ἔχετε καιρόν. οἱ γὰρ στρατιῶται οὗτοι πάντες πρὸς ὑμᾶς βλέπουσι, κἂν μὲν ὑμᾶς ὁρῶσιν ἀθύμους, πάντες κακοὶ ἔσονται, ἢν δὲ ὑμεῖς αὐτοί τε παρασκευαζόμενοι φανεροὶ ἦτε ἐπὶ τοὺς πολεμίους καὶ τοὺς ἄλλους παρακαλῆτε, εὖ ἴστε ὅτι ἕψονται ὑμῖν καὶ πειράσονται μιμεῖσθαι.— 3, 1

6 Translate into Greek:

a We must always try to do whatever Cyrus bids us.

b If the soldiers with Cyrus had known that he was making preparations to march against his brother, they would not have promised to follow.

c Let us not be discouraged, for our army is much larger than that of the enemy.

7 Give the reason for the case of Τισσαφέρνους (*a*, 2), ξένου (*b*, 3), Κύρῳ (*b*, 4), νυκτὸς (*b*, 5), ἀγαθοῖς (*c*, 2), Περσῶν (*c*, 3), στόλῳ (*c*, 4), πολεμίων (*c*, 6). Give the syntax of πέμψαι (*b*, 7), εἶναι (*c*, 2).

8 Give the reason for the mode of εἴη (*a*, 2), οἴχονται (*a*, 3), πέμποιέν (*a*, 5), ἐπιθῶνται (*b*, 5), δύνηται (*b*, 8), κατακάνοιεν (*c*, 6). Select from questions 1–5 a circumstantial participle denoting concession, a circumstantial participle expressing purpose, a circumstantial participle denoting time. Decline διώρυχος (*b*, 9) in the plural.

9 From what verb is each of the following and where is the form found: ᾔσθοντο (*a*, 1), νικῷεν (*a*, 3), ἐβουλεύετο (*a*, 4), ἀποληφθῆτε (*b*, 9), καταθύσειν (*c*, 6)?

10 Write the principal parts of ἤκουσε (*a*, 2), καλέσας (*a*, 5), φυλάττεσθαι (*b*, 5), διαβῆτε (*b*, 8), εὑρεῖν (*c*, 7).

11 Conjugate συντάττεται (*a*, 4), εἰδῆτε (*c*, 2) in the voice, mode and tense here found. Write the first form of each mode, including participle, of ὑποστῆναι (*c*, 4) in the voice and tense here found. Compare εὖνοι (*b*, 5).

12 Write an account of the expedition of Cyrus, touching on (*a*) its purpose, (*b*) the manner in which Cyrus brought together his forces, (*c*) the battle of Cunaxa and its results.

13 Explain the arrangement of clauses in (*a*). Give the reason for the number of ἔπεμψέ (*b*, 4); for the accent of ἔστι (*b*, 6). Give the reason for the case of ὑμᾶς (*c*, 1) and mention *one* other Greek verb that takes the same construction as ἀναμιμνήσκω. Explain the reference in ἐλθόντων . . . ἐνίκησαν αὐτούς (*c*, 3–5).

14 Give the composition of *each* of the following words and the meaning of each part: εὖνοι (*b*, 5), προγόνων (*c*, 1), παμπληθεῖ (*c*, 4); the derivation of στρατεύματι (*a*, 1), στόλῳ (*c*, 4). Give, with meaning, an English word derived from the stem of πάντες (*a*, 5), αὐτός (*b*, 3).

15 Translate into English [This must be taken by those who desire credit for the fourth book]:

THE GREEKS ARE HARD PRESSED BY THE ENEMY

Ἐπεὶ δὲ ἀριστήσαντες ἐπορεύοντο, ὑποστήσαντες ἐν τῷ στενῷ οἱ στρατηγοί, εἴ τι εὑρίσκοιεν τῶν εἰρημένων μὴ ἀφειμένον, ἀφῃροῦντο, οἱ δ' ἐπείθοντο, πλὴν εἴ τις ἔκλεψεν, οἷον ἢ παιδὸς ἐπιθυμήσας ἢ γυναικὸς τῶν εὐπρεπῶν. καὶ ταύτην μὲν τὴν ἡμέραν οὕτως ἐπορεύθησαν, τὰ μέν τι μαχόμενοι τὰ δέ τι ἀναπαυόμενοι. εἰς δὲ τὴν ὑστεραίαν γίγνεται χειμὼν πολύς, ἀναγκαῖον δ' ἦν πορεύεσθαι· οὐ γὰρ ἦν ἱκανὰ τἀπιτήδεια. καὶ ἡγεῖτο μὲν Χειρίσοφος, ὠπισθοφυλάκει δὲ Ξενοφῶν. καὶ οἱ πολέμιοι ἰσχυρῶς ἐπετίθεντο, καὶ στενῶν ὄντων τῶν χωρίων ἐγγὺς προσιόντες ἐτόξευον καὶ ἐσφενδόνων· ὥστε ἠναγκάζοντο οἱ Ἕλληνες ἐπιδιώκοντες καὶ πάλιν ἀναχάζοντες σχολῇ πορεύεσθαι.—4, 1

High School Department

182D EXAMINATION

XENOPHON'S ANABASIS

Tuesday, June 14, 1904 — 1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a CYRUS CONTRASTS THE GREEK AND BARBARIAN SOLDIERS

Ὦ ἄνδρες Ἕλληνες, οὐκ ἀνθρώπων ἀπορῶν βαρβάρων συμμάχους ὑμᾶς ἄγω, ἀλλὰ νομίζων ἀμείνονας καὶ κρείττους πολλῶν βαρβάρων ὑμᾶς εἶναι, διὰ τοῦτο προσέλαβον. ὅπως οὖν ἔσεσθε ἄνδρες ἄξιοι τῆς ἐλευθερίας ἧς κέκτησθε καὶ ἧς ὑμᾶς ἐγὼ εὐδαιμονίζω. εὖ γὰρ ἴστε ὅτι τὴν ἐλευθερίαν ἑλοίμην ἂν ἀντὶ ὧν ἔχω πάντων καὶ ἄλλων πολλαπλασίων. ὅπως δὲ καὶ εἰδῆτε εἰς οἷον ἔρχεσθε ἀγῶνα, ὑμᾶς εἰδὼς διδάξω. τὸ μὲν γὰρ πλῆθος πολὺ καὶ κραυγῇ πολλῇ ἐπίασιν· ἂν δὲ ταῦτα ἀνάσχησθε, τὰ ἄλλα καὶ αἰσχυνεῖσθαί μοι δοκῶ οἵους ἡμῖν γνώσεσθε τοὺς ἐν τῇ χώρᾳ ὄντας ἀνθρώπους. — 1, 7

b CLEARCHUS APPEALS TO PHALINUS FOR ADVICE

Ἐγώ σε, ὦ Φαλῖνε, ἄσμενος ἑώρακα, οἶμαι δὲ καὶ οἱ ἄλλοι πάντες· σύ τε γὰρ Ἕλλην εἶ καὶ ἡμεῖς τοσοῦτοι ὄντες ὅσους σὺ ὁρᾷς· ἐν τοιούτοις δὲ ὄντες πράγμασι συμβουλευόμεθά σοι τί χρὴ ποιεῖν περὶ ὧν λέγεις. σὺ οὖν πρὸς θεῶν συμβούλευσον ἡμῖν ὅ τι σοι δοκεῖ κάλλιστον καὶ ἄριστον εἶναι, καὶ ὅ σοι τιμὴν οἴσει εἰς τὸν ἔπειτα χρόνον ἀεὶ λεγόμενον, ὅτι Φαλῖνός ποτε πεμφθεὶς παρὰ βασιλέως κελεύσων τοὺς Ἕλληνας τὰ ὅπλα παραδοῦναι συμβουλευομένοις συνεβούλευσεν αὐτοῖς τάδε. — 2, 1

c THE GREEKS RACE FOR THE HIGHT

Οἱ δ' ἐπὶ τοῦ λόφου πολέμιοι ὡς ἐνόησαν αὐτῶν τὴν πορείαν ἐπὶ τὸ ἄκρον, εὐθὺς καὶ αὐτοὶ ὥρμησαν ἀμιλλᾶσθαι ἐπὶ τὸ ἄκρον. καὶ ἐνταῦθα πολλὴ μὲν κραυγὴ ἦν τοῦ Ἑλληνικοῦ στρατεύματος διακελευομένων τοῖς ἑαυτῶν, πολλὴ δὲ κραυγὴ τῶν ἀμφὶ Τισσαφέρνην τοῖς ἑαυτῶν διακελευομένων. Ξενοφῶν δὲ παρελαύνων ἐπὶ τοῦ ἵππου παρεκελεύετο· Ἄνδρες, νῦν ἐπὶ τὴν Ἑλλάδα νομίζετε ἀμιλλᾶσθαι, νῦν πρὸς τοὺς παῖδας καὶ τὰς γυναῖκας, νῦν ὀλίγον πονήσαντες ἀμαχεὶ τὴν λοιπὴν πορευσόμεθα. — 3, 4

6 Translate into Greek:

a Fellow-soldiers, you must not surrender your arms even if the king should desire it.

b Command the army to advance, that the hill may not be occupied by the enemy.

c Cyrus, because he knew that the Greeks possessed freedom, believed that Greek soldiers would be braver than other soldiers.

7 Give the reason for the case of κρείττους (*a*, 2), βαρβάρων (*a*, 2), ἧς (*a*, 4), ὧν (*a*, 5), κραυγῇ (*a*, 7), ἄλλα (*a*, 7), ἡμῖν (*a*, 8), ἡμῖν (*b*, 4), στρατεύματος (*c*, 3), λοιπὴν (*c*, 7).

8 Give the reason for the mode of εἶναι (*a*, 2), ἑλοίμην (*a*, 5), εἰδῆτε (*a*, 6), ἀνάσχησθε (*a*, 7), ποιεῖν (*b*, 3), ἁμιλλᾶσθαι (*c*, 2). Select from questions 1–5 an attributive participle, a circumstantial participle denoting cause, a circumstantial participle expressing purpose, a circumstantial participle denoting time.

9 Decline ἀμείνονας (*a*, 2) in the neuter, singular and plural; εἰδὼς (*a*, 6) in the feminine, singular and plural; πράγμασι (*b*, 3) in the plural; γυναῖκας (*c*, 7) in the singular. Compare κρείττους (*a*, 2), ἄξιοι (*a*, 3), κάλλιστον (*b*, 4), ὀλίγον (*c*, 7).

10 Write the principal parts of νομίζων (*a*, 2), κέκτησθε (*a*, 4), γνώσεσθε (*a*, 8), ἐνόησαν (*c*, 1), ὥρμησαν (*c*, 2).

11 Conjugate διδάξω (*a*, 6), παρεκελεύετο (*c*, 5), in the voice, mode and tense here found. Write all the active and middle infinitives of ἄγω (*a*, 2).

12 Account for the mode and tense of ἔσεσθε (*a*, 3); for the difference in voice between συμβουλευομένοις (*b*, 7) and συνεβούλευσεν (*b*, 7); for the number and case of διακελευομένων (*c*, 3). Mention *three* verbs other than ἀπορῶν (*a*, 1) which are regularly followed by the genitive. Point out an example of chiasmus in questions 1–5.

13 Describe the defensive armor and the weapons of (*a*) a Persian foot-soldier, (*b*) a Greek hoplite, (*c*) a Greek peltast.

14 Give the derivation or composition of *each* of the following words and the meaning of stem and prefix or suffix: ἀγῶνα (*a*, 6), πράγμασι (*b*, 3), ἀμαχεὶ (*c*, 7). Show how the meaning of συμμάχους (*a*, 1) is derived. Give, with meaning, the Greek words from which the following are derived: autobiography, microscope.

15 Translate into English [This must be taken by those who desire credit for the fourth book]:

XENOPHON PROPOSES A PLAN OF ATTACK

Ἔλεξεν οὖν Ξενοφῶν ὅτι δοκοίη παύσαντας τὴν φάλαγγα λόχους ὀρθίους ποιῆσαι· ἡ μὲν γὰρ φάλαγξ διασπασθήσεται εὐθύς· τῇ μὲν γὰρ ἄνοδον τῇ δὲ εὔοδον εὑρήσομεν τὸ ὄρος· καὶ εὐθὺς τοῦτο ἀθυμίαν ποιήσει ὅταν τεταγμένοι εἰς φάλαγγα ταύτην διεσπασμένην ὁρῶσιν. ἔπειτα ἢν μὲν ἐπὶ πολλῶν τεταγμένοι προσάγωμεν, περιττεύσουσιν ἡμῶν οἱ πολέμιοι καὶ τοῖς περιττοῖς χρήσονται ὅ τι ἂν βούλωνται· ἐὰν δὲ ἐπ' ὀλίγων τεταγμένοι ὦμεν, οὐδὲν ἂν εἴη θαυμαστὸν εἰ διακοπείη ἡμῶν ἡ φάλαγξ ὑπὸ ἀνθρώπων καὶ βελῶν πολλῶν ἐμπεσόντων· εἰ δέ πῃ τοῦτο ἔσται, τῇ φάλαγγι κακὸν ἔσται.—4, 8

University of the State of New York

High School Department

180TH EXAMINATION

HOMER'S ILIAD

Thursday, January 28, 1904 — 1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a ATHENA APPEARS TO ACHILLES

1 Στῆ δ' ὄπιθεν, ξανθῆς δὲ κόμης ἕλε Πηλείωνα,
2 οἴῳ φαινομένη, τῶν δ' ἄλλων οὔ τις ὁρᾶτο.
3 θάμβησεν δ' Ἀχιλεύς, μετὰ δ' ἐτράπετ', αὐτίκα δ' ἔγνω
4 Παλλάδ' Ἀθηναίην· δεινὼ δέ οἱ ὄσσε φάανθεν.
5 καί μιν φωνήσας ἔπεα πτερόεντα προσηύδα·
6 Τίπτ' αὖτ', αἰγιόχοιο Διὸς τέκος, εἰλήλουθας;
7 ἦ ἵνα ὕβριν ἴδῃ Ἀγαμέμνονος Ἀτρεΐδαο;
8 ἀλλ' ἔκ τοι ἐρέω, τὸ δὲ καὶ τελέεσθαι ὀΐω·
9 ᾗς ὑπεροπλίῃσι τάχ' ἄν ποτε θυμὸν ὀλέσσῃ. — 1, 197–205

b ODYSSEUS ADDRESSES AGAMEMNON

1 Ἀτρεΐδη, νῦν δή σε, ἄναξ, ἐθέλουσιν Ἀχαιοὶ
2 πᾶσιν ἐλέγχιστον θέμεναι μερόπεσσι βροτοῖσιν,
3 οὐδέ τοι ἐκτελέουσιν ὑπόσχεσιν, ἥν περ ὑπέσταν
4 ἐνθάδ' ἔτι στείχοντες ἀπ' Ἄργεος ἱπποβότοιο,
5 Ἴλιον ἐκπέρσαντ' εὐτείχεον ἀπονέεσθαι.
6 ὥς τε γὰρ ἢ παῖδες νεαροὶ χῆραί τε γυναῖκες
7 ἀλλήλοισιν ὀδύρονται οἶκόνδε νέεσθαι.
8 ἦ μὴν καὶ πόνος ἐστὶν ἀνιηθέντα νέεσθαι. — 2, 284–291

c THE TROJANS AND GREEKS ADVANCE

1 Αὐτὰρ ἐπεὶ κόσμηθεν ἅμ' ἡγεμόνεσσιν ἕκαστοι,
2 Τρῶες μὲν κλαγγῇ τ' ἐνοπῇ τ' ἴσαν ὄρνιθες ὥς,
3 ἠΰτε περ κλαγγὴ γεράνων πέλει οὐρανόθι πρό,
4 αἵ τ' ἐπεὶ οὖν χειμῶνα φύγον καὶ ἀθέσφατον ὄμβρον,
5 κλαγγῇ ταί γε πέτονται ἐπ' Ὠκεανοῖο ῥοάων
6 ἀνδράσι Πυγμαίοισι φόνον καὶ κῆρα φέρουσαι·
7 ἠέριαι δ' ἄρα ταί γε κακὴν ἔριδα προφέρονται·
8 οἱ δ' ἄρ' ἴσαν σιγῇ μένεα πνείοντες Ἀχαιοί,
9 ἐν θυμῷ μεμαῶτες ἀλεξέμεν ἀλλήλοισιν. — 3, 1–9

6 Translate into Greek [Do not use rare or poetic constructions]:

a If some of the soldiers had been sent to ask Cyrus for money, he would have paid them at once.

b Do not think that you will be defeated because you have no cavalry, for the men and not the horses do the fighting.

7 Write the Attic prose form for στῇ (*a*, 1), εἰλήλουθας (*a*, 6), ᾗς (*a*, 9), θέμεναι (*b*, 2), ἱπποβότοιο (*b*, 4), κόσμηθεν (*c*, 1), ἡγεμόνεσσιν (*c*, 1), ἴσαν (*c*, 2), φύγον (*c*, 4), μένεα (*c*, 8).

8 Mention a leading trait of character of *each* of the following, illustrating by references to the *Iliad:* Achilles, Agamemnon, Paris, Thersites, Odysseus.

9 Give the reason for the case of κόμης (*a*, 1), ἄλλων (*a*, 2), οἱ (*a*, 4), Ἀτρεΐδαο (*a*, 7), ὑπεροπλίῃσι (*a*, 9), κλαγγῇ (*c*, 5), ἀλλήλοισιν (*c*, 9); for the mode of θέμεναι (*b*, 2), ἀπονέεσθαι (*b*, 5), νέεσθαι (*b*, 8).

10 Give the reason for the mode of ἴδῃ (*a*, 7), ὀλέσσῃ (*a*, 9). Classify the participle στείχοντες (*b*, 4). Conjugate ἔγνω (*a*, 3), ἴδῃ (*a*, 7) in the voice, mode and tense here found. Compare κακὴν (*c*, 7).

11 From what verb is each of the following and where is the form found: ἕλε (*a*, 1), φάανθεν (*a*, 4), προσηύδα (*a*, 5), ἐκπέρσαντ' (*b*, 5), φέρουσαι (*c*, 6)?

12 Write the principal parts of φαινομένη (*a*, 2), φύγον (*c*, 4), προφέρονται (*c*, 7). Decline πτερόεντα (*a*, 5) in the singular, masculine and feminine, ὄρνιθες (*c*, 2) in singular and plural.

13 Explain the force of αὖτ' (*a*, 6), δή (*b*, 1); the meaning of the suffix -θι in οὐρανόθι (*c*, 3). Explain the use of the voice of τελέεσθαι (*a*, 8). Give the correlative of μὲν (*c*, 2).

14 Give the derivation or composition of *each* of the following words and the meaning of each part: αἰγιόχοιο (*a*, 6), Ἀτρείδῃ (*b*, 1), ἀθέσφατον (*c*, 4). Define gnomic aorist and give an example from questions 1-5. Mention and define a rhetorical figure in (*c*).

15 Scan lines 6, 7 and 8 of (*a*), marking quantity of syllables, division into feet and principal cesuras. Explain *two* cases of hiatus in (*a*, 7). Define tmesis and give an example from questions 1-5.

University of the State of New York

High School Department

182D EXAMINATION

HOMER'S ILIAD

Thursday, June 16, 1904 — 1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a ZEUS DISMISSES THETIS

1 Τὴν δὲ μέγ' ὀχθήσας προσέφη νεφεληγερέτα Ζεύς·
2 "Ἦ δὴ λοίγια ἔργ', ὅτε μ' ἐχθοδοπῆσαι ἐφήσεις
3 Ἥρῃ, ὅτ' ἄν μ' ἐρέθῃσιν ὀνειδείοις ἐπέεσσιν.
4 ἡ δὲ καὶ αὔτως μ' αἰὲν ἐν ἀθανάτοισι θεοῖσιν
5 νεικεῖ, καί τέ μέ φησι μάχῃ Τρώεσσιν ἀρήγειν.
6 ἀλλὰ σὺ μὲν νῦν αὖτις ἀπόστιχε, μή τι νοήσῃ
7 Ἥρη· ἐμοὶ δέ κε ταῦτα μελήσεται, ὄφρα τελέσσω.
8 εἰ δ' ἄγε τοι κεφαλῇ κατανεύσομαι, ὄφρα πεποίθῃς."—1, 517–524

b THE PEOPLE ASSEMBLE

1 Ὡς τῶν ἔθνεα πολλὰ νεῶν ἄπο καὶ κλισιάων
2 ἠιόνος προπάροιθε βαθείης ἐστιχόωντο
3 ἰλαδὸν εἰς ἀγορήν· μετὰ δέ σφισιν ὄσσα δεδήειν
4 ὀτρύνουσ' ἰέναι, Διὸς ἄγγελος· οἱ δ' ἀγέροντο.
5 τετρήχει δ' ἀγορή, ὑπὸ δὲ στεναχίζετο γαῖα
6 λαῶν ἱζόντων, ὅμαδος δ' ἦν. ἐννέα δέ σφεας
7 κήρυκες βοόωντες ἐρήτυον, εἴ ποτ' ἀυτῆς
8 σχοίατ', ἀκούσειαν δὲ διοτρεφέων βασιλήων.
9 σπουδῇ δ' ἕζετο λαός, ἐρήτυθεν δὲ καθ' ἕδρας
10 παυσάμενοι κλαγγῆς.— 2, 91–100

c AGAMEMNON PRAYS THAT THE OATHS BE UNBROKEN

1 Ζεῦ πάτερ, Ἴδηθεν μεδέων, κύδιστε μέγιστε,
2 ἠέλιός θ', ὃς πάντ' ἐφορᾷς καὶ πάντ' ἐπακούεις,
3 καὶ ποταμοὶ καὶ γαῖα, καὶ οἳ ὑπένερθε καμόντας
4 ἀνθρώπους τίνυσθον, ὅτις κ' ἐπίορκον ὀμόσσῃ,
5 ὑμεῖς μάρτυροι ἔστε, φυλάσσετε δ' ὅρκια πιστά·
6 εἰ μέν κεν Μενέλαον Ἀλέξανδρος καταπέφνῃ,
7 αὐτὸς ἔπειθ' Ἑλένην ἐχέτω καὶ κτήματα πάντα,
8 ἡμεῖς δ' ἐν νήεσσι νεώμεθα ποντοπόροισιν.— 3, 276–283

6 Translate into Greek [Do not use rare or poetic constructions]:

a They promised that they would not betray each other but would remain friends and allies.

b I know that they will try to prevent our army from crossing the river.

c Do not come till you have accomplished what you were ordered to do.

7 Write the Attic prose form for τὴν (*a*, 1), θεοῖσιν (*a*, 4), ὄφρα (*a*, 7), κλισιάων (*b*, 1), δεδήειν (*b*, 3), σφεας (*b*, 6), βοόωντες (*b*, 7), σχοίατ' (*b*, 8), βασιλήων (*b*, 8), νήεσσι (*c*, 8).

8 State the circumstances that led to the visit of Thetis to Zeus in (*a*). Give an account of the purpose for which the people were brought together in (*b*) and state the result of the assembly.

9 Give the reason for the case of ἐπέεσσιν (*a*, 3), μάχῃ (*a*, 5), ἐμοὶ (*a*, 7), αὐτῆς (*b*, 7), ἠέλιός (*c*, 2), μάρτυροι (*c*, 5). Give the syntax of ἐχθοδοπῆσαι (*a*, 2), ἀρήγειν (*a*, 5). Classify the following participles: ἱζόντων (*b*, 6), βοόωντες (*b*, 7).

10 Give the reason for the mode of νοήσῃ (*a*, 6), πεποίθῃς (*a*, 8), ἀκούσειαν (*b*, 8), ὀμόσσῃ (*c*, 4). Conjugate ἐρήτυον (*b*, 7), νεώμεθα (*c*, 8) in the voice, mode and tense here found.

11 Write the principal parts of νεικεῖ (*a*, 5), ὀμόσσῃ (*c*, 4), ἐχέτω (*c*, 7). Decline Ζεύς (*a*, 1), ἠιόνος βαθείης (*b*, 2) in the singular, πάτερ (*c*, 1) in the plural.

12 From what verb is each of the following and where is the form found: ἐφήσεις (*a*, 2), ὀτρύνουσ' (*b*, 4), τετρήχει (*b*, 5), ἐρήτυθεν (*b*, 9), τίνυσθον (*c*, 4)?

13 Explain the force of the tense of ἐρήτυον (*b*, 7). Explain the reference in Ἴδηθεν (*c*, 1), οἳ . . . τίνυσθον (*c*, 3–4). Account for the accent of ἠέλιός (*c*, 2). Mention *two* epithets (not found on this paper) applied to Zeus.

14 Give the composition of each of the following words and the meaning of each part: νεφεληγερέτα (*a*, 1), διοτρεφέων (*b*, 8), ποντοπόροισιν (*c*, 8). Explain the derivation of κτήματα (*c*, 7), giving the meaning of the stem and suffix. Define anastrophe and select an example from questions 1–5.

15 Scan the last *three* lines of (*a*), marking quantity of syllables, division into feet and principal cesuras. Define and illustrate litotes, feminine cesura.

University of the State of New York

High School Department

180TH EXAMINATION

GREEK—Second Year

Tuesday, January 26, 1904—1.15 to 4.15 p.m., only

Answer the first six questions and four of the others but no more. *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a THE VIGOROUS OLD AGE OF AGESILAUS

Δοκεῖ δ᾽ ἔμοιγε καὶ τόδε μόνος ἀνθρώπων ἐπιδεῖξαι ὅτι ἡ μὲν τοῦ σώματος ἰσχὺς γηράσκει, ἡ δὲ τῆς ψυχῆς ῥώμη τῶν ἀγαθῶν ἀνδρῶν ἀγήρατός ἐστιν. ἐκεῖνος γοῦν οὐκ ἀπεῖπε μεγάλην καὶ καλὴν ἐφιέμενος δόξαν, εἰ καὶ μὴ τὸ σῶμα φέρειν ἠδύνατο τὴν τῆς ψυχῆς αὐτοῦ ῥώμην. τοιγαροῦν ποίας οὐ νεότητος κρεῖττον τὸ ἐκείνου γῆρας ἐφάνη; . . . τίνα δὲ νέον οἱ φίλοι πλέον ἐπόθησαν ἢ Ἀγησίλαον γηραιὸν ἀποθανόντα; οὕτω δὲ τελέως ὁ ἀνὴρ τῇ πατρίδι ὠφέλιμος ὢν διεγένετο ὡς καὶ τετελευτηκὼς ἤδη ἔτι μεγαλείως ὠφελῶν τὴν πόλιν εἰς τὴν ἀίδιον οἴκησιν κατηγάγετο.

—Xenophon, *Agesilaus*, 11

b THE SEIZURE OF THE INHABITANTS OF ELEUSIS

Ἐκ δὲ τούτου οἱ τριάκοντα, οὐκέτι νομίζοντες ἀσφαλῆ σφίσι τὰ πράγματα, ἐβουλήθησαν Ἐλευσῖνα ἐξιδιώσασθαι, ὥστε εἶναι σφίσι καταφυγήν, εἰ δεήσειε. καὶ παραγγείλαντες τοῖς ἱππεῦσιν ἦλθον εἰς Ἐλευσῖνα Κριτίας τε καὶ οἱ ἄλλοι τῶν τριάκοντα· ἐξέτασίν τε ποιήσαντες ἐν τοῖς ἱππεῦσι, φάσκοντες εἰδέναι βούλεσθαι πόσοι εἶεν καὶ πόσης φυλακῆς προσδεήσοιντο, ἐκέλευον ἀπογράφεσθαι πάντας· τὸν δὲ ἀπογραψάμενον ἀεὶ διὰ τῆς πυλίδος ἐπὶ τὴν θάλατταν ἐξιέναι. ἐπὶ δὲ τῷ αἰγιαλῷ τοὺς μὲν ἱππέας ἔνθεν καὶ ἔνθεν κατέστησαν, τὸν δ᾽ ἐξιόντα ἀεὶ οἱ ὑπηρέται συνέδουν.

—Xenophon, *Hellenica*, 2, 4

c THE PERFECT CURE

Τὸν αὐτὸν τοίνυν τρόπον, ἔφη, καὶ πρὸς τὴν Παιδείαν ὅταν τις παραγένηται, θεραπεύει αὐτὸν καὶ ποτίζει τὴν ἑαυτῆς δύναμιν, ὅπως ἐκκαθάρῃ πρῶτον καὶ ἐκβάλῃ τὰ κακὰ πάντα ὅσα ἔχων ἦλθε.

Ποῖα ταῦτα;

Τὴν ἄγνοιαν καὶ τὸν πλάνον, ὃν ἐπεπώκει παρὰ τῆς Ἀπάτης, καὶ τὴν ἀλαζονείαν καὶ τὴν ἐπιθυμίαν καὶ τὴν ἀκρασίαν καὶ τὸν θυμὸν καὶ τὴν φιλαργυρίαν καὶ τὰ λοιπὰ πάντα, ὧν ἀνεπλήσθη ἐν τῷ πρώτῳ περιβόλῳ.

Ὅταν οὖν καθαρθῇ, ποῦ αὐτὸν ἀποστέλλει;

Ἔνδον, ἔφη, πρὸς τὴν Ἐπιστήμην καὶ πρὸς τὰς ἄλλας Ἀρετάς.

—Cebes, *Tabula*, 19–20

6 Translate into Greek:

a The Thirty decided to gain possession of Eleusis, for they desired to have a place of refuge, in which they would be safe from their enemies.

b If Deceit bids you drink anything, you must not do it, for you will be filled with ignorance and avarice.

7 Give an account of the Thirty, touching on (*a*) their rule, (*b*) their downfall.

8 Give the reason for the case of ἀνθρώπων (*a*, 1), νεότητος (*a*, 5), πατρίδι (*a*, 7), ἀσφαλῆ (*b*, 1), τρόπον (*c*, 1), ὧν (*c*, 7); for the mode of δεήσειε (*b*, 3); εἶεν (*b*, 5), παραγένηται (*c*, 1–2), ἐκβάλῃ (*c*, 3).

9 Give the reason for the mode of ἐπιδεῖξαι (*a*, 1), φέρειν (*a*, 4), εἶναι (*b*, 2), βούλεσθαι (*b*, 5). Select from questions 1–5 a supplementary participle, a circumstantial participle denoting cause, an attributive participle. Decline τετελευτηκὼς (*a*, 7) in the plural, all genders.

10 From what verb is each of the following and where is the form found: προσδεήσοιντο (*b*, 5), ἀπογραψάμενον (*b*, 6), συνέδουν (*b*, 8), ἐπεπώκει (*c*, 5), καθαρθῇ (*c*, 8)?

11 Write the principal parts of ἐφιέμενος (*a*, 3), ἐφάνη (*a*, 5), ἀποθανόντα (*a*, 6), κατέστησαν (*b*, 8), ἀνεπλήσθη (*c*, 7).

12 Conjugate ἐβουλήθησαν (*b*, 2), εἶεν (*b*, 5) in the voice, mode and tense here found. Write the first form of each mode, including participle, of ἐκβάλῃ (*c*, 3) in the voice and tense here found. Compare ἀσφαλῆ (*b*, 1).

13 Explain the force of γοῦν (*a*, 3), of ἀεὶ (*b*, 8), of κατά in κατηγάγετο (*a*, 8), of ἀνά in ἀνεπλήσθη (*c*, 7). Account in full for the accent of ἀγήρατός ἐστιν (*a*, 2).

14 Translate into Greek: Agesilaus showed that even though his body might grow old, his spirit remained always young. For even in his old age, he performed such great services for his country, that when he died he was missed by both friends and foes.

15 Give the derivation of each of the following words and the meaning of each part: γηράσκει (*a*, 2), ἀΐδιον (*a*, 8), τρόπον (*c*, 1). Show how the meaning of ὑπηρέται (*b*, 8) is derived. Give, with meaning, an English word derived from the stem of μόνος (*a*, 1), πόλιν (*a*, 8).

University of the State of New York 135

High School Department

182D EXAMINATION

GREEK—Second Year

Tuesday, June 14, 1904—1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a THE UPRIGHTNESS OF AGESILAUS

Ἐκεῖνός γε μὴν ὑμνῶν οὔποτ᾽ ἔληγεν ὡς τοὺς θεοὺς οἴοιτο οὐδὲν ἧττον ὁσίοις ἔργοις ἢ ἁγνοῖς ἱεροῖς ἥδεσθαι. ἀλλὰ μὴν καὶ ὁπότε εὐτυχοίη, οὐκ ἀνθρώπων ὑπερεφρόνει, ἀλλὰ θεοῖς χάριν ᾔδει. καὶ θαρρῶν πλείονα ἔθυεν ἢ ὀκνῶν ηὔχετο. εἴθιστο δὲ φοβούμενος μὲν ἱλαρὸς φαίνεσθαι, εὐτυχῶν δὲ πρᾷος εἶναι. τῶν γε μὴν φίλων οὐ τοὺς δυνατωτάτους ἀλλὰ τοὺς προθυμοτάτους μάλιστα ἠσπάζετο. ἐμίσει δὲ οὐκ εἴ τις κακῶς πάσχων ἠμύνετο, ἀλλ᾽ εἴ τις εὐεργετούμενος ἀχάριστος φαίνοιτο. ἔχαιρε δὲ τοὺς μὲν αἰσχροκερδεῖς πένητας ὁρῶν, τοὺς δὲ δικαίους πλουσίους ποιῶν, βουλόμενος τὴν δικαιοσύνην τῆς ἀδικίας κερδαλεωτέραν καθιστάναι.

—Xenophon, *Agesilaus*, 11

b THE STRATEGY OF LYSANDER

Λύσανδρος δὲ τῇ ἐπιούσῃ νυκτί, ἐπεὶ ὄρθρος ἦν, ἐσήμηνεν εἰς τὰς ναῦς ἀριστοποιησαμένους εἰσβαίνειν, πάντα δὲ παρασκευασάμενος ὡς εἰς ναυμαχίαν καὶ τὰ παραβλήματα παραβάλλων, προεῖπεν ὡς μηδεὶς κινήσοιτο ἐκ τῆς τάξεως μηδὲ ἀνάξοιτο. οἱ δὲ Ἀθηναῖοι ἅμα τῷ ἡλίῳ ἀνίσχοντι ἐπὶ τῷ λιμένι παρετάξαντο ἐν μετώπῳ ὡς εἰς ναυμαχίαν. ἐπεὶ δὲ οὐκ ἀντανήγαγε Λύσανδρος, καὶ τῆς ἡμέρας ὀψὲ ἦν, ἀπέπλευσαν πάλιν εἰς τοὺς Αἰγὸς ποταμούς. Λύσανδρος δὲ τὰς ταχίστας τῶν νεῶν ἐκέλευσεν ἕπεσθαι τοῖς Ἀθηναίοις, ἐπειδὰν δὲ ἐκβῶσι, κατιδόντας ὅ τι ποιοῦσιν ἀποπλεῖν καὶ αὐτῷ ἐξαγγεῖλαι.—Xenophon, *Hellenica*, 2, 1

c THE ONE GOOD

Καὶ τὸ σύνολον δέ, ἔστι τὸ τιμᾶν ταῦτα ὡς ἀγαθὰ ὄντα ἢ ἀτιμάζειν ὡς κακά, τοῦτο δέ ἐστι τὸ ταράττον τοὺς ἀνθρώπους καὶ βλάπτον, ὅτι ἐὰν τιμῶσιν αὐτὰ καὶ οἴωνται διὰ τούτων μόνων εἶναι τὸ εὐδαιμονεῖν, καὶ πάνθ᾽ ὑπομένουσι πράττειν ἕνεκα τούτων καὶ τὰ ἀσεβέστατα καὶ τὰ αἰσχρότατα δοκοῦντα εἶναι οὐ παραιτοῦνται. ταῦτα δὲ πάσχουσι διὰ τὴν τοῦ ἀγαθοῦ ἄγνοιαν. ἀγνοοῦσι γὰρ ὅτι οὐ γίνεται ἐκ κακῶν ἀγαθόν. πλοῦτον δὲ ἔστι πολλοὺς κτησαμένους ἰδεῖν ἐκ κακῶν καὶ αἰσχρῶν ἔργων.

—Cebes, *Tabula*, 40

6 Translate into Greek:

a Only those who are very ignorant believe that good can come out of evil.

b You ought not to hate me, because, though I appear ungrateful to you, I am your friend.

c Whenever he sees an upright man who is successful, he is much pleased.

7 Give an account of the battle of Aegospotami referred to in (*b*) and mention its results.

8 Give the reason for the case of ἔργοις (*a*, 2), φίλων (*a*, 5), ἀδικίας (*a*, 9), νυκτί (*b*, 1), ἡμέρας (*b*, 6), ἀγαθοῦ (*c*, 5); for the mode of οἴοιτο (*a*, 1), φαίνοιτο (*a*, 7), ἐκβῶσι (*b*, 8), τιμῶσιν (*c*, 3).

9 Give the syntax of ἥδεσθαι (*a*, 2), ἀποπλεῖν (*b*, 8), τιμᾶν (*c*, 1). State whether *each* of the following participles is attributive, circumstantial or supplementary: ὑμνῶν (*a*, 1), βουλόμενος (*a*, 9), παραβάλλων (*b*, 3), δοκοῦντα (*c*, 5). Decline πρᾶος (*a*, 5) in the feminine plural, ἡλίῳ ἀνίσχοντι (*b*, 4) in the singular.

10 Write the principal parts of ἠμύνετο (*a*, 7), εἰσβαίνειν (*b*, 2), ἐξαγγεῖλαι (*b*, 9), παραιτοῦνται (*c*, 5), πάσχουσι (*c*, 5).

11 From what verb is each of the following and where is the form found: ᾔδει (*a*, 3), εὐτυχῶν (*a*, 4), ἀνάξοιτο (*b*, 4), παρετάξαντι (*b*, 5), βλάπτον (*c*, 2)?

12 Conjugate ἀντανήγαγε (*b*, 5), οἴωνται (*c*, 3) in the voice, mode and tense here found. Write the first form of each mode, including participle, of ἐπιούσῃ (*b*, 1) in the voice and tense here found. Compare πρᾶος (*a*, 5).

13 Explain the force of μὴν (*a*, 1); the use of ὡς (*b*, 2). Mention *two* verbs (not found on this paper) which are regularly followed by the infinitive in indirect discourse, illustrating by Greek sentences. Write in direct discourse μηδεὶς κινήσοιτο (*b*, 3).

14 Translate into Greek: If the Athenians had known that Lysander was preparing for battle, they would have drawn up their ships in better order. But they supposed that Lysander would not attack them on that day and therefore they sailed back to Aegospotami.

15 Give the derivation or composition of *each* of the following words and the meaning of each part: ὑπερεφρόνει (*a*, 3), εὐεργετούμενος (*a*, 7), σύνολον (*c*, 1). Explain the derivation of δικαιοσύνην (*a*, 9), giving meaning of stem and suffix. Show how the meaning of παραβλήματα (*b*, 3) is derived.

University of the State of New York

High School Department

180TH EXAMINATION

GREEK—Third Year

Thursday, January 28, 1904—1.15 to 4.15 p. m., only

Answer the first seven questions and three of the others but **no more.** *If more than three of the others are answered only the first three answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a HERA SUMMONS APHRODITE

Βῆ ῥ' ἴμεν ἐκ θαλάμοιο, καλεσσαμένη δ' Ἀφροδίτην
τῶν ἄλλων ἀπάνευθε θεῶν πρὸς μῦθον ἔειπεν·
Ἦ ῥά νύ μοί τι πίθοιο, φίλον τέκος, ὅττι κεν εἴπω,
ἠέ κεν ἀρνήσαιο, κοτεσσαμένη τό γε θυμῷ,
οὕνεκ' ἐγὼ Δαναοῖσι, σὺ δὲ Τρώεσσιν ἀρήγεις;
Τὴν δ' ἠμείβετ' ἔπειτα Διὸς θυγάτηρ Ἀφροδίτη·
Ἥρη, πρέσβα θεά, θύγατερ μεγάλοιο Κρόνοιο,
αὔδα, ὅ τι φρονέεις· τελέσαι δέ με θυμὸς ἄνωγεν,
εἰ δύναμαι τελέσαι γε καὶ εἰ τετελεσμένον ἐστίν.

—Homer, *Iliad*, 14, 188–196

ἀρνέομαι = refuse, κοτέω = be angry, αὐδάω = speak

b AGESILAUS PREPARES TO RETURN TO GREECE

Ὁ δ' Ἀγησίλαος ἐν μὲν τῇ Ἀσίᾳ κατέλιπεν Εὔξενον ἁρμοστὴν καὶ φρουροὺς παρ' αὐτῷ οὐκ ἔλαττον τετρακισχιλίων, ἵνα δύναιτο διασῴζειν τὰς πόλεις· αὐτὸς δὲ ὁρῶν ὅτι οἱ πολλοὶ τῶν στρατιωτῶν μένειν ἐπεθύμουν μᾶλλον ἢ ἐφ' Ἕλληνας στρατεύεσθαι, βουλόμενος ὡς βελτίστους καὶ πλείστους ἄγειν μεθ' ἑαυτοῦ, ἆθλα προύθηκε ταῖς πόλεσιν, ἥτις ἄριστον στράτευμα πέμποι, καὶ τῶν μισθοφόρων τοῖς λοχαγοῖς, ὅστις εὐοπλότατον λόχον ἔχων συστρατεύοιτο καὶ ὁπλιτῶν καὶ τοξοτῶν καὶ πελταστῶν.

—Xenophon, *Hellenica*, 4, 2

ἆθλον = prize, εὔοπλος = well-equipped

c CYRUS AND CYAXARES EXCHANGE GIFTS

Ἐπεὶ δὲ πορευόμενοι γίγνονται κατὰ τὴν Μηδικήν, τρέπεται ὁ Κῦρος πρὸς Κυαξάρην. ἐπεὶ δὲ ἠσπάσαντο ἀλλήλους, πρῶτον μὲν δὴ ὁ Κῦρος εἶπε τῷ Κυαξάρῃ ὅτι οἶκος αὐτῷ ἐξῃρημένος εἴη ἐν Βαβυλῶνι, ὅπως ἔχῃ καὶ ὅταν ἐκεῖσε ἔλθῃ εἰς οἰκεῖα κατάγεσθαι· ἔπειτα δὲ καὶ ἄλλα δῶρα ἔδωκεν αὐτῷ πολλὰ καὶ καλά. ὁ δὲ Κυαξάρης ταῦτα μὲν ἐδέχετο, προσέπεμψε δὲ αὐτῷ τὴν θυγατέρα στέφανόν τε χρυσοῦν καὶ ψέλια φέρουσαν. καὶ ἡ μὲν δὴ παῖς ἐστεφάνου τὸν Κῦρον, ὁ δὲ Κυαξάρης εἶπε, Δίδωμι δέ σοι, ἔφη, ὦ Κῦρε, καὶ αὐτὴν ταύτην γυναῖκα, ἐμὴν οὖσαν θυγατέρα.

—Xenophon, *Cyropaedia*, 8, 5

ἀσπάζομαι = greet, στέφανος = crown, ψέλιον = bracelet

6 Translate into Greek: (*a*) Cyrus chose a house in Babylon for Cyaxares who was one of his best friends, (*b*) Aphrodite said that she would do whatever Hera desired, (*c*) When

Agesilaus went back home he decided to leave in Asia a governor and many companies of soldiers.

7 Translate into Greek: Agesilaus having summoned his men spoke to them as follows: "Fellow soldiers, if you will make the expedition with me into Greece, I will give you many gifts, for I wish to lead as large an army as possible."

8 Give the reason for the case of *τό* (*a*, 4), *θυμῷ* (*a*, 4), *τετρακισχιλίων* (*b*, 2), *στρατιωτῶν* (*b*, 3), *λοχαγοῖς* (*b*, 6); for the mode of *πίθοιο* (*a*, 3), *δύναιτο* (*b*, 2), *πέμποι* (*b*, 6), *ἐξηρημένος εἴη* (*c*, 3), *ἔλθῃ* (*c*, 4).

9 Conjugate *δίδωμι* in the aorist indicative active, *πείθω* in the pluperfect indicative middle, *φαίνω* in the second aorist optative passive. Write the principal parts of *λέγω*, *τρέπω*.

10 Translate into English:

Ἐπεὶ δὲ οὔτε Χειρίσοφος ἧκεν οὔτε πλοῖα ἱκανὰ ἦν οὔτε τὰ ἐπιτήδεια ἦν λαμβάνειν ἔτι, ἐδόκει ἀπιτέον εἶναι. καὶ εἰς μὲν τὰ πλοῖα τούς τε ἀσθενοῦντας ἐνεβίβασαν καὶ τοὺς ὑπὲρ τετταράκοντα ἔτη καὶ παῖδα, καὶ γυναῖκας καὶ τῶν σκευῶν ὅσα μὴ ἀνάγκη ἦν ἔχειν.—Xenophon, *Anabasis*, 5, 3

ἐμβιβάζω=put on board

11 Translate into English:

Πολλάκις ἐθαύμασα τίσι ποτὲ λόγοις Ἀθηναίους ἔπεισαν οἱ γραψάμενοι Σωκράτη ὡς ἄξιος εἴη θανάτου τῇ πόλει. ἡ μὲν γὰρ γραφὴ κατ᾽ αὐτοῦ τοιάδε τις ἦν· Ἀδικεῖ Σωκράτης οὓς μὲν ἡ πόλις νομίζει θεοὺς οὐ νομίζων, ἕτερα δὲ δαιμόνια εἰσφέρων.—Xenophon, *Memorabilia*, 1, 1

γράφομαι=indict, *νομίζω*=believe in, *δαιμόνιον*=divinity

12 Translate into Greek: (*a*) He promised to deliberate about these things and to do the best that he could, (*b*) If you had not come we should have proceeded at once against the king, (*c*) Agesilaus marched so swiftly that he arrived in Asia before the Persians knew that he had started from Greece.

13 Translate into English:

Καί ῥ᾽ ὁ μὲν ἔνθα καθέζετ᾽ ἐπὶ θρόνου, ἔνθεν ἀνέστη
Ἑρμείας, νύμφη δὲ τίθει πάρα πᾶσαν ἐδωδήν,
ἔσθειν καὶ πίνειν, οἷα βροτοὶ ἄνδρες ἔδουσιν·
αὐτὴ δ᾽ ἀντίον ἷζεν Ὀδυσσῆος θείοιο,
τῇ δὲ παρ᾽ ἀμβροσίην δμωαὶ καὶ νέκταρ ἔθηκαν.

—Homer, *Odyssey* 5, 195–199

ἐδωδή=food, *δμωή*=serving-woman

14 Translate into English:

Καὶ δὴ καὶ τότε πρωιαίτερον συνελέγημεν. τῇ γὰρ προτεραίᾳ ἡμέρᾳ ἐπειδὴ ἐξήλθομεν ἐκ τοῦ δεσμωτηρίου ἑσπέρας, ἐπυθόμεθα, ὅτι τὸ πλοῖον ἐκ Δήλου ἀφιγμένον εἴη. παρηγγείλαμεν οὖν ἀλλήλοις ἥκειν ὡς πρωιαίτατα. καὶ ἥκομεν καὶ ἡμῖν ἐξελθὼν ὁ θυρωρὸς εἶπεν περιμένειν καὶ μὴ πρότερον παριέναι, ἕως ἂν αὐτὸς κελεύσῃ.—Plato, *Phaedo*, 3

πρωί=early in the morning, *δεσμωτήριον*=prison, *θυρωρός*=doorkeeper

15 Write and translate Greek sentences illustrating *three* of the following: dative of agent, past general condition, relative clause of result, genitive of material, absolute infinitive.

University of the State of New York

High School Department

182D EXAMINATION

GREEK—Third Year

Thursday, June 16, 1904—1.15 to 4.15 p. m., only

Answer the first seven questions and three of the others but **no more.** *If more than three of the others are answered only the first three answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a THE SWINEHERD LAMENTS HIS ABSENT MASTER

Ὣς ὁ μὲν ἔνθ' ἀπόλωλε, φίλοισι δὲ κήδε' ὀπίσσω
πᾶσιν, ἐμοὶ δὲ μάλιστα, τετεύχαται· οὐ γὰρ ἔτ' ἄλλον
ἤπιον ὧδε ἄνακτα κιχήσομαι, ὁππόσ' ἐπέλθω,
οὐδ' εἴ κεν πατρὸς καὶ μητέρος αὖτις ἵκωμαι
οἶκον, ὅθι πρῶτον γενόμην καί μ' ἔτρεφον αὐτοί·
οὐδέ νυ τῶν ἔτι τόσσον ὀδύρομαι, ἱέμενός περ
ὀφθαλμοῖσιν ἰδέσθαι ἐὼν ἐν πατρίδι γαίῃ·
ἀλλά μ' Ὀδυσσῆος πόθος αἴνυται οἰχομένοιο.

—Homer, *Odyssey*, 14, 137–144

τετεύχαται = were, ἤπιος = kind, ὀδύρομαι = mourn for, αἴνυμαι = seize

b CYRUS COMPARES HIS FATHER WITH HIS GRANDFATHER

Ὁρῶν δὴ τὸν κόσμον τοῦ πάππου, ἐμβλέπων αὐτῷ ἔλεγεν, Ὦ μῆτερ, ὡς καλός μοι ὁ πάππος. ἐρωτώσης δὲ αὐτὸν τῆς μητρὸς πότερος καλλίων αὐτῷ δοκεῖ εἶναι, ὁ πατὴρ ἢ οὗτος, ἀπεκρίνατο ἄρα ὁ Κῦρος, Ὦ μῆτερ, Περσῶν μὲν πολὺ κάλλιστος ὁ ἐμὸς πατήρ, Μήδων μέντοι ὅσων ἑώρακα ἐγὼ πολὺ οὗτος ὁ ἐμὸς πάππος κάλλιστος. ὁ δὲ πάππος αὐτὸν στολὴν καλὴν ἐνέδυσε, καὶ εἴ ποι ἐξελαύνοι, ἐφ' ἵππου χρυσοχαλίνου περιῆγεν, ὥσπερ καὶ αὐτὸς εἰώθει πορεύεσθαι.—Xenophon, *Cyropaedia*, 1, 3

στολή = robe, χρυσοχάλινος = with gold-studded bridle

c THE GREEKS ARE BESIEGED IN CAMP

Καὶ ἅμα ἡμέρᾳ κύκλῳ περὶ τὸν λόφον ἔνθα οἱ Ἕλληνες ἐστρατοπεδεύοντο ἐτάττοντο καὶ ἱππεῖς πολλοὶ καὶ πελτασταί, καὶ ἀεὶ πλέονες συνέρρεον· καὶ προσέβαλλον πρὸς τοὺς ὁπλίτας ἀσφαλῶς· οἱ μὲν γὰρ Ἕλληνες οὔτε τοξότην εἶχον οὔτε ἀκοντιστὴν οὔτε ἱππέα· οἱ δὲ προσθέοντες καὶ προσελαύνοντες ἠκόντιζον· ὁπότε δὲ αὐτοῖς ἐπίοιεν, ῥᾳδίως ἀπέφευγον· ἄλλοι δὲ ἄλλῃ ἐπετίθεντο. καὶ τῶν μὲν πολλοὶ ἐτιτρώσκοντο, τῶν δὲ οὐδείς· ὥστε κινηθῆναι οὐκ ἐδύναντο ἐκ τοῦ χωρίου, ἀλλὰ τελευτῶντες καὶ ἀπὸ τοῦ ὕδατος εἶργον αὐτοὺς οἱ Θρᾷκες. ἐπεὶ δὲ ἀπορία πολλὴ ἦν, διελέγοντο περὶ σπονδῶν.—Xenophon, *Anabasis*, 6, 3

συρρέω = flock together, εἴργω = keep away

6 Translate into Greek: (*a*) Do not encamp on this hill, for the Thracians intend to make an attack in the night, (*b*) "Tell me, Cyrus," said his mother, "whether you think that your grandfather is handsomer than your father," (*c*) Would that Odysseus might return to his native land.

7 Translate into Greek: (*a*) If very many of our cavalry should be wounded in this battle, we should not be able to advance at daybreak, (*b*) He replies, "I have so great a longing to see my father and mother that I must go home at once."

8 Give the reason for the case of *οἶκον* (*a*, 5), *Ὀδυσσῆος* (*a*, 8), *μοι* (*b*, 2), *ἐρωτώσης* (*b*, 2), *Περσῶν* (*b*, 4), *αὐτοῖς* (*c*, 5); for the mode of *ἵκωμαι* (*a*, 4), *ἐξελαύνοι* (*b*, 6), *κινηθῆναι* (*c*, 7). Compare *ἀσφαλῶς* (*c*, 3).

9 Translate into English:

Πρὸς θεῶν, ἔφη, μὴ τοίνυν ἀποκρύψῃ, ἀλλ' εἶπον ἡμῖν ἐκ τίνος ἄρξει τὴν πόλιν εὐεργετεῖν. ἐπεὶ δὲ ὁ Γλαύκων διεσιώπησεν, ὡς ἂν τότε σκοπῶν ὁπόθεν ἄρχοιτο· Ἆρ', ἔφη ὁ Σωκράτης, ὥσπερ φίλου οἶκον εἰ αὐξῆσαι βούλοιο, πλουσιώτερον αὐτὸν ἐπιχειροίης ἂν ποιεῖν, οὕτω καὶ τὴν πόλιν πειράσει πλουσιωτέραν ποιῆσαι; —Xenophon, *Memorabilia*, 3, 6

ἀποκρύπτω=conceal, *διασιωπάω*=remain silent, *αὐξάνω*=increase

10 Translate into English:

Δοξάντων δὲ τούτων καλῶς εἰπεῖν, ἐψηφίσαντο καὶ οἱ Λακεδαιμόνιοι δέχεσθαι τὴν εἰρήνην, ἐφ' ᾧ τούς τε ἁρμοστὰς ἐκ τῶν πόλεων ἐξάγειν, τάς τε πόλεις αὐτονόμους ἐᾶν. ἐπὶ τούτοις ὤμοσαν Λακεδαιμόνιοι μὲν ὑπὲρ αὐτῶν καὶ τῶν συμμάχων, Ἀθηναῖοι δὲ καὶ οἱ σύμμαχοι κατὰ πόλεις ἕκαστοι.

αὐτόνομος=independent —Xenophon, *Hellenica*, 6, 3

11 Translate into Greek: Socrates was accustomed to converse with every one whom he met. He was always doing everything that he could to benefit the citizens of Athens. Nevertheless they accused him of trying to injure the young men of the city.

12 Translate into English:

Εἶπεν ἐπευξάμενος Διί τ' ἄλλοισίν τε θεοῖσιν·
Ζεῦ ἄλλοι τε θεοί, δότε δὴ καὶ τόνδε γενέσθαι
παῖδ' ἐμόν, ὡς καὶ ἐγώ περ, ἀριπρεπέα Τρώεσσιν,
ὧδε βίην τ' ἀγαθὸν καὶ Ἰλίου ἶφι ἀνάσσειν·
καί ποτέ τις εἴποι "Πατρός γ' ὅδε πολλὸν ἀμείνων."

ἀριπρεπής=preeminent —Homer, *Iliad*, 6, 475–479

13 Translate into English:

Ἀλλ' αὐτὰ ταῦτα καὶ νῦν ἥκω παρὰ σέ, ἵνα ὑπὲρ ἐμοῦ διαλεχθῇς αὐτῷ. ἐγὼ γὰρ ἅμα μὲν καὶ νεώτερός εἰμι, ἅμα δὲ οὐδὲ ἑώρακα Πρωταγόραν πώποτε οὐδ' ἀκήκοα οὐδέν· ἔτι γὰρ παῖς ἢ, ὅτε τὸ πρότερον ἐπεδήμησεν. ἀλλὰ γάρ, ὦ Σώκρατες, πάντες τὸν ἄνδρα ἐπαινοῦσι καί φασι σοφώτατον εἶναι λέγειν.

ἐπιδημέω=be in town —Plato, *Protagoras*, 2

14 Write an account of *two* of the following: career of Alcibiades, Socrates as a philosopher, expedition of the 10,000 before the battle of Cunaxa, the return of Odysseus.

15 Write and translate Greek sentences illustrating the following: genitive of cause, dative of manner, gnomic aorist, infinitive of purpose, circumstantial participle denoting means.

University of the State of New York

High School Department

180TH EXAMINATION

GREEK PROSE COMPOSITION

Wednesday, January 27, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

Translate into Greek:

1 If they had not fought bravely they would not have taken the city.

2 Will you be able to cross this river before Menon and his followers appear?

3 Do not injure in any way those who have assisted you lest you make them your enemies.

4 The Athenians asked the Spartans for aid, because the Persians were preparing to make an expedition against Athens.

5 Agesilaus was so very kind to all his friends that when he died they greatly missed him.

6–7 After the death of Cyrus, the king sent heralds to the Greek generals to say that he commanded the Greeks to surrender their arms to him. As soon as Clearchus heard this he said that it was not the part of the victors to surrender their arms to the vanquished.

8–9 Since Agesilaus knew that the Persian king was collecting a large army to send against the Greeks, he asked that a small number of Spartans and allies be given him. With these he intended to cross into Asia and to force the Persian king to make peace with the Greeks.

10–12 One of the soldiers stood up and spoke as follows: "I should not trust any guide whom Cyrus would give us but should be afraid that we should be betrayed into the hands of the enemy. Moreover, it is impossible to return home secretly, for Cyrus would prevent us from going. Therefore I think that some men ought to be chosen to go to Cyrus in order that we may find out from him what he wishes us to do."

13–15 The Lacedaemonians were defeated by the Thebans at Leuctra and ten thousand of the Lacedaemonians were killed in this battle. When the ephors learned of this great calamity, they bade the women bear their grief in silence. Though the Lacedaemonians had lost so many men, yet they did not become discouraged but immediately collected another army. The son of Agesilaus was chosen to lead this army, as Agesilaus was ill.

aid = *βοήθεια*, miss = *ποθέω*, surrender = *παραδίδωμι*, betray = *προδίδωμι*, calamity = *πάθος*, grief = *λύπη*, in silence = *σιγῇ*

High School Department

182D EXAMINATION

GREEK PROSE COMPOSITION

Wednesday, June 15, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

Translate into Greek:

1 The general marched very rapidly because he was pursued by the whole army of the enemy.

2 Do not embark in the ships which he has given us, lest he sink us, ships and all.

3 If any one of you shall ask for three months pay, he shall receive it.

4 Let us seize these men for it is evident that they are plotting against the king.

5 If Agesilaus had known that one of his friends was in danger, he would have assisted him at once.

6–7 The Persian general had such a large force of cavalry that Agesilaus could not advance. Accordingly Agesilaus thought that he too must collect as many horsemen as he could. To obtain these at once he announced that all those who would furnish horses should not be compelled to go on the expedition.

8–9 Xenophon arose and spoke as follows: "Fellow soldiers, we must march wherever we can get provisions. I have heard from a soldier that there are some large villages not more than twenty stades distant. In these villages I hope we shall find all the provisions that we need at present."

10–12 The Athenians, after they had lost all their ships in the naval battle, were besieged by land and by sea. Since they no longer had either ships or allies, they were in doubt what ought to be done. At last, when their provisions had given out, ambassadors were sent to the Spartan general. They told him that the Athenians wished to be allies of the Spartans but were unwilling to tear down their walls. He replied, "If you desire peace, you must send ambassadors to Sparta."

13–15 A messenger came to the Greeks to bid them be on their guard lest the barbarians should attack them that night. "Tissaphernes," said he, "is intending, if he can, to burn the bridge over the Tigris to prevent you from crossing." When the Greeks heard this they thought it best to send a guard to the bridge. Since no one attacked the guard the army set out to march to the river and crossed the bridge before Tissaphernes arrived.

sink = *καταδύω*, compel = *ἀναγκάζω*, be in doubt = *ἀπορέω*, give out = *ἐπιλείπω*, tear down = *καθαιρέω*, set out = *ἐξορμάω*

University of the State of New York

High School Department

179TH EXAMINATION

LATIN—First Year

Tuesday, September 29, 1903—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but no more, including at least one translation into English and one translation into Latin. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1 Indicate the accent of each of *four* of the following, giving the rule for the length of the accented syllable in each case: *terraeque*, *dies*, *corporum*, *hortorum*, *amatur*, *unius*.

2 Decline *vulnus*, *ager*, *mons*, in the singular; *pugna*, *proelium*, in the plural.

3 Translate into English:

Dum haec geruntur, copiae hostium in unum locum convenerunt. Cum magnus numerus horum *convenisset*, Vercingetorix castra sua milia *passuum* decem ab castris Romanorum posuit. Postero *die*, Vercingetorix, convocatis *ducibus* ad concilium, tempus victoriae *venisse* dixit.

concilium = council

4 Give the reason for the case of *passuum*, *die*, *ducibus;* for the mode of *convenisset*, *venisse*.

5 Write the principal parts of *dico*, *utor*, *do*, *facio*, *video*.

6 Translate into Latin:

- *a* When the leaders had assembled, Vercingetorix came among them.
- *b* Their camp will be pitched two miles from our camp.
- *c* War must be waged against the enemy.
- *d* They were summoned by Caesar to a council.
- *e* He said that he had a large number of troops.

7 Translate into English:

Legati Karthaginienses Romam venerunt, qui *peterent* ut captivi redderentur. Senatus *respondit*, se captivos non reddituros esse. Hoc cognito Karthaginienses Hannibalem domum revocaverunt. Ubi Hannibal revertit, rex factus est, postquam imperator multos annos fuerat.

Karthaginiensis = Carthaginian, *revoco* = recall

8 Conjugate *peterent* in the imperfect indicative active, in the pluperfect subjunctive passive; *respondit* in the future indicative active, in the present subjunctive active.

9 From the Latin passage in question 7 select (*a*) an accusative used as subject of an infinitive, (*b*) an accusative of duration of time, (*c*) a predicate nominative, (*d*) a clause of purpose, (*e*) an accusative of limit of motion.

10 Decline the following in the singular: *primus impetus*, *alius fortis homo.*

11 Translate into Latin:

a Soldiers, fight bravely for your native land.
b I believe that he will be my friend.
c All who were present sought aid from Caesar.
d He is about to go to Rome.
e On the next day they marched very swiftly and came to a broad, deep river.

12 Compare *parvus*, *difficilis*, *altus*, *sapiens.* Form an adverb from *brevis*, *latus.*

13 Translate into English:

a Caesar, de his rebus certior factus, misit Labienum cum una legione auxilio.
b Imperator Romanus properavit ut proelio adesset.
c Est nihil melius amicitia.
d Parati sumus ad audiendum omnia quae habeas dicere.
e Nemo est tam senex qui non putet se unum annum vivere posse.

14 Write the second person plural of *each* of the tenses of the indicative and subjunctive of *possum.*

15 Decline the feminine of *iste* in singular and plural; the neuter of *qui* in the plural; *domus* in singular and plural.

University of the State of New York

High School Department

180TH EXAMINATION

LATIN—First Year

Tuesday, January 26, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more,** *including at least one translation into English and one translation into Latin. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Mention *three* terminations of the nominative singular of nouns of the third declension that commonly indicate masculine gender; *two* terminations of the nominative singular of nouns of the third declension that commonly indicate neuter gender. Illustrate in each case.

2 Decline *manus*, *virtus*, in the singular; *animus*, *silva*, *hostis*, in the plural.

3 Translate into English:

Caesar Germanos *equites* quos secum habebat ex castris educi iussit proeliumque cum Gallis commisit. Galli impetum equitum *sustinere* non potuerunt atque multis amissis fugam petiverunt. His *rebus* confectis Caesar Avaricum profectus est ut hoc maximo *oppido potiretur*.

amitto=lose, *Avaricum*=Avaricum (town in Gaul)

4 Give the reason for the case of *equites*, *rebus*, *oppido;* for the mode of *sustinere*, *potiretur*.

5 Translate into Latin:

a If he orders me to set out from Rome, I shall go.

b He can not gain possession of the town.

c Lead out the cavalry against the Gauls.

d Caesar must join battle with the Germans.

e Let us finish these things.

6 Write the principal parts of *transeo*, *nuntio*, *gero*, *conor*, *compleo*.

7 Decline the following in the singular: *quidam miser senex*, *totum imperium*.

8 Conjugate *impero* in the perfect indicative active, in the present subjunctive active; *sequor* in the future perfect indicative, in the present imperative.

9 Translate into English:

Agesilaus persuasit Lacedaemoniis ut cum exercitu contra Persas eum mitterent. Nam rex Persarum conferebat classes exercitusque quos in Graeciam mittere volebat. Agesilaus tanta celeritate processit ut cum copiis pervenerit priusquam Persae parati essent.

persuadeo=persuade, *Graecia*=Greece, *paratus*=prepared

10 Compare *liber*, *dulcis*. Form and compare an adverb from *each* of the following: *sapiens*, *malus*.

11 Decline the neuter of *is* in singular and plural; the present participle of *habeo* in the singular; *cornu* in singular and plural.

12 Write the Latin words for the following: 4, 11, 13, 18, 25, 500, 6th, 8th, 14th, 30th.

13 Translate into Latin:

a Caesar was informed that the enemy had fled into the forest.

b The states that were nearest to Gaul sent ambassadors to him.

c The march through the hills will be much more difficult.

d The consuls freed Rome from all dangers.

e The lives of great men teach us many things.

14 Write all the active infinitives of *capio;* the second person singular of *each* of the tenses of the indicative and imperative active of *capio.*

15 Translate into English:

a Vita est carior viris multo auro.

b Cicero, qui pater patriae appellatus est, amicus Caesaris erat.

c Postero die aciem pro castris instruxit.

d Caesar in Galliam cum magno exercitu ad provinciam defendendam venit.

e Tam longe aberam ut eum non viderem.

High School Department

181ST EXAMINATION

LATIN—First Year

Friday, March 25, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but* no more, *including at least one translation into English and one translation into Latin. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1 Define and illustrate enclitic, antepenult. Indicate the accent and the gender of *each* of the following: *capitis*, *consiliorum*, *nautae*, *nominibus*, *voluptatem*, *hostium*.

2 Write the genitive and accusative singular of *each* of the following: *vir*, *corpus*, *victoria*, *spes*, *pes;* the nominative and dative plural of *each* of the following: *donum*, *civitas*, *annus*, *iter*, *collis*.

3 Translate into English:

Caesar, certior factus Nervios in armis *esse*, in eorum fines cum magno exercitu properavit. Tanta *celeritate* iter fecit ut magnum numerum Nerviorum *caperet* et eos *sibi* obsides dare cogeret. Eo *bello* confecto, Caesar in provinciam suam legiones reduxit.

Nervii=the Nervii (a tribe of Gaul), *cogo*=compel

4 Give the reason for the case of *celeritate*, *sibi*, *bello;* for the mode of *esse*, *caperet*.

5 Translate into Latin:

a He said that their territories were very broad.

b Why does he not finish this war?

c They must give hostages.

d If he hastens he will capture many of them.

e Three legions will be led by Caesar against the Nervii.

6 Decline the neuter of *aliquis* in singular and plural; *sapiens* in the plural, all genders; the gerund of *facio*.

7 Translate into English:

Eo tempore Dareus rex Persarum suas copias ex Asia *eduxit* ut cum Scythis bellum gereret. Pontem in flumine lato altoque fecit. Dum ipse *abesset*, quosdam principes reliquit qui eum pontem custodirent. In hoc numero fuit Miltiades.

Scythae= Scythians

8 Conjugate ***eduxit*** in the future indicative active, in the imperfect subjunctive passive; ***abesset*** in the pluperfect indicative, in the present subjunctive.

9 Write the principal parts of ***sto***, ***potior***, ***lego***, ***debeo***, ***nolo***.

10 Compare ***brevis***, ***multus***, ***pulcher***, ***prudens***. Form an adverb from the comparative of ***fortis;*** from the superlative of ***bonus***.

11 Decline the following in the singular; ***brevis dies***, ***hoc altum flumen***.

12 Translate into Latin:

a Caesar had so many soldiers that he easily conquered.

b Let us be good citizens of the state.

c The Gauls flee into the woods that our men may not see them.

d Would that our consul were living!

e He has five thousand horsemen in camp at Rome.

13 Write the third person plural of *each* of the tenses of the indicative and subjunctive passive of *teneo*.

14 Translate into English:

a Caesar dixit, "De his causis Rhenum statim transire decrevi."

b Cognovit copias hostium non longe abesse.

c Hoc ipso die proficiscendum mihi est.

d In ea loca iter facere coepit in quibus Germani erant.

e Alius in aliam partem fugit.

15 Write Latin sentences illustrating ***three*** of the following: ablative of degree (measure) of difference, ablative of cause, accusative of duration of time, dative with a compound verb, a clause of cause.

High School Department

182D EXAMINATION

LATIN—First Year

Tuesday, June 14, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more,** *including at least one translation into English and one translation into Latin. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Indicate the gender, accent and division into syllables of each of *four* of the following nouns: *obsidibus*, *proeliis*, *agricolis*, *civitatem*, *victores*, *noctium*, *equum*, *epistularum*.

2 Decline *tempus*, *fortuna*, *senatus*, in the singular; *captivus*, *auxilium*, in the plural.

3 Translate into English:

Hac *re* nuntiata, Caesar ex castris omnem equitatum *militibus* auxilio misit. Interea nostri pedites impetum *hostium* sustinuerunt atque amplius quattuor horis fortissime pugnaverunt et multos ex his occiderunt. Hostes, cum *equites* nostros procedere *vidissent*, arma abiecerunt et fugerunt.

amplius=more, *abicio*=throw away

4 Give the reason for the case of *re*, *militibus*, *hostium*, *equites;* for the mode of *vidissent*.

5 Translate into Latin:

a The foot-soldiers of Caesar fought bravely, because he was with them.

b Many of Caesar's men will be killed by the enemy.

c If the cavalry see the enemy, they will not flee.

d Let us send aid to our soldiers.

e Withstand their attack for an hour.

6 Write the principal parts of *vinco*, *terreo*, *miror*, *credo*, *munio*.

7 Decline the feminine of *idem* in singular and plural; *ego* in the plural; *deus* in singular and plural.

8 Translate into English:

Duae sunt viae quibus Antigonus ad castra hostium venire potest. Brevior via est per loca quae nemo propter inopiam aquae incolit. Si Antigonus longiore via proficiscetur hostes de eius adventu certiores facientur, priusquam ipse tertiam partem itineris confecerit.

9 Conjugate *scio* in the future perfect indicative active, in the imperfect subjunctive active; *libero* in the pluperfect subjunctive active, in the imperfect indicative passive.

10 Compare *longus*, *bonus*, *fortis*. Form and compare an adverb from *celer*. Form an adverb from *liber*.

11 Decline *clarus sol* in the singular; *haec ingens multitudo* in the plural.

12 Translate into Latin:

a This was not a place suitable for pitching a camp.

b Are not the Gauls braver than the Germans?

c Some advanced toward the town, others crossed the bridge.

d They went to their general to ask for money.

e Caesar knew that the tenth legion had set out from the province.

13 Write all the infinitives and participles of *eo*; the second person singular of *each* of the tenses of the subjunctive and imperative of *eo*.

14 Translate into English:

a Monuit eos ne arma contra patriam caperent.

b Accidit ut eo tempore non domi essem.

c Ubi omnes idem sentire scivit, Romam proficisci properavit.

d Etiam si Romae erat, illum non vidimus.

e Hoc viro duce in bello nihil agere poterant.

15 Define and illustrate in Latin *each* of the following: vocative case, deponent verb, possessive adjective (possessive pronoun), active (first) periphrastic conjugation, interrogative pronoun.

University of the State of New York

High School Department

179TH EXAMINATION

CAESAR'S COMMENTARIES

Thursday, October 1, 1903—9.15 a. m. to 12.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a THE ROMAN ARMY IS PANIC-STRICKEN

Tantus subito timor omnem exercitum occupavit, ut non mediocriter *omnium* mentes animosque perturbaret. Hic *primum ortus est* a tribunis militum, praefectis reliquisque, qui ex urbe *amicitiae* causa Caesarem secuti non magnum in ***re militari usum*** habebant: *quorum* alius alia causa illata, *quam* sibi ad proficiscendum necessariam esse *diceret*, *petebat*, ut eius voluntate *discedere liceret;* non nulli pudore adducti, ut timoris suspicionem vitarent, *remanebant.*—1, 39

b SABINUS AVOIDS AN ENGAGEMENT

Magnaque praeterea multitudo undique ex Gallia perditorum hominum latronumque convenerat, quos spes *praedandi studium*que *bellandi* ab agri cultura et cotidiano labore *revocabat.* Sabinus idoneo omnibus *rebus loco* castris sese tenebat, cum Viridovix contra eum duorum milium *spatio consedisset* cotidieque *productis* copiis pugnandi *potestatem faceret*, ut iam non solum *hostibus* in contemptionem Sabinus *veniret*, sed etiam nostrorum militum *vocibus* non nihil carperetur.—3, 17

c THE GERMANS FLEE WITH GREAT LOSS

Germani, post tergum *clamore* audito, cum suos *interfici* viderent, armis abiectis *signis*que militaribus *relictis* se ex castris eiecerunt, et cum ad confluentem Mosae et Rheni *pervenissent*, reliqua fuga desperata, magno numero interfecto, reliqui se in flumen praecipitaverunt atque ibi timore, *lassitudine*, vi fluminis oppressi perierunt. Nostri ad unum omnes incolumes, *perpaucis* vulneratis, ex tanti belli timore, cum hostium numerus *capitum* quadringentorum et triginta *milium* fuisset, se in castra receperunt.—4, 15

6 Translate into Latin [Do not use rare or poetic constructions]:

a They wished that their soldiers be permitted to keep their arms.

b Caesar said that he was about to set out into Gaul with all his forces.

c Many of those who followed the army for the purpose of plundering were killed in this battle.

7 Translate into Latin [Do not use rare or poetic constructions]:

a We must seize these towns for they belong to the Belgians.

b The eagerness of the soldiers to fight was so great that the general led them forth against the enemy.

c If we had remained there, we should have perished.

8 Give the reason for the case of ***omnium***, ***quorum*** (*a*), ***rebus***, ***hostibus*** (*b*), ***lassitudine*** (*c*); for the mode of ***liceret*** (*a*), ***consedisset***, ***veniret*** (*b*), ***interfici***, ***pervenissent*** (*c*).

9 Write the principal parts of ***ortus est***, ***remanebant*** (*a*), ***revocabat***, ***consedisset*** (*b*), ***relictis*** (*c*).

10 Translate into English: Is ita cum Caesare egit: *si pacem* populus Romanus cum Helvetiis faceret, in eam partem ituros atque ibi futuros Helvetios, ubi eos Caesar *constituisset*.

Rewrite *si pacem . . . constituisset* in direct discourse.

11 Give the reason for the case of ***amicitiae***, ***quam*** (*a*), ***praedandi***, ***loco***, ***spatio***, ***vocibus*** (*b*), ***clamore***, ***milium*** (*c*); for the mode of ***diceret***, ***discedere*** (*a*).

12 Write an account of Caesar's campaign against Ariovistus, touching on (*a*) causes, (*b*) principal events, (*c*) results.

13 Decline ***bellandi*** (*b*). Decline throughout ***re militari*** (*a*), ***potestatem*** (*b*), ***signis*** (*c*). Compare ***primum*** (*a*).

14 Select from questions 1–5 an ablative of separation, an accusative of limit (end) of motion, a predicate adjective. Give the force of the tense of ***faceret*** (*b*). Write the second person singular of ***each*** of the tenses of the indicative, active and passive, of ***petebat*** (*a*).

15 Give the derivation or composition of ***each*** of the following and show how the meaning of each is derived: ***remanebant*** (*a*), ***productis*** (*b*), ***perpaucis*** (*c*). Give an English word derived from the stem of ***usum*** (*a*), ***studium***, ***loco*** (*b*), ***capitum*** (*c*).

University of the State of New York

High School Department

179TH EXAMINATION

CAESAR'S COMMENTARIES

Friday, October 2, 1903—9.15 a. m. to 12.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1-5 Translate into English:

a CAESAR CONFERS WITH ARIOVISTUS

Ariovistus, ex *equis* ut colloquerentur et praeter se denos ut ad colloquium adducerent, *postulavit.* Ubi eo ventum est, Caesar *initio orationis* sua senatusque in eum beneficia commemoravit, quod *rex appellatus esset* a senatu, quod *amicus*, quod *munera* amplissime missa; *quam rem* et paucis contigisse et pro magnis hominum *officiis* consuesse *tribui docebat; illum*, cum neque aditum neque causam *postulandi* iustam haberet, *beneficio* ac liberalitate sua ac senatus ea praemia *consecutum.* —1, 43

b CAESAR ENCOURAGES HIS SOLDIERS

Caesar necessariis rebus imperatis ad cohortandos milites, quam in partem fors obtulit, decucurrit et ad legionem decimam devenit. Milites non *longiore oratione* cohortatus quam: uti suae pristinae *virtutis* memoriam *retinerent* neu perturbarentur *animo*, *hostium*que impetum *fortiter* sustinerent, quod non longius hostes aberant, quam quo telum adici *posset*, *proelii committendi* signum dedit. Atque in *alteram partem* item cohortandi causa *profectus pugnantibus occurrit.*—2, 21

c THE ROMANS ATTEMPT TO LAND

Atque nostris *militibus* cunctantibus, maxime propter altitudinem *maris*, qui decimae legionis *aquilam* ferebat obtestatus deos ut ea res *legioni* feliciter eveniret, "Desilite," inquit, "milites, nisi *vultis* aquilam hostibus *prodere*: ego certe meum rei publicae atque imperatori officium *praestitero.*" Hoc cum *voce* magna *dixisset*, se ex navi *proiecit* atque in hostes aquilam *ferre* coepit. Tum nostri cohortati inter se, ne tantum dedecus *admitteretur*, universi ex navi desiluerunt. Hos item ex proximis navibus cum conspexissent, subsecuti hostibus appropinquarunt.—4, 25

6 Translate into Latin [Do not use rare or poetic constructions]:

a He said that he had discharged his duty to Caesar.

b The soldiers of the tenth legion were the bravest in Caesar's whole army.

c Do you desire to be called a friend of the Roman people?

7 Translate into Latin [Do not use rare or poetic constructions]:

a Legates will be sent to demand many things from them.

b They did not leap down from their ships into the sea, because the water was deep in that place.

c Our soldiers must not be frightened by the attacks of the enemy.

8 Give the reason for the case of *initio*, *beneficio* (*a*), *virtutis*, *pugnantibus* (*b*), *legioni* (*c*); for the mode of *appellatus esset*, *tribui* (*a*), *retinerent* (*b*), *vultis*, *dixisset* (*c*).

9 Write the principal parts of *postulavit*, *docebat* (*a*), *profectus*, *occurrit* (*b*), *proiecit* (*c*).

10 Give the reason for the case of *amicus* (*a*), *animo*, *hostium* (*b*), *militibus*, *voce* (*c*); for the mode of *consecutum* (*a*), *posset* (*b*), *ferre*, *admitteretur* (*c*). Compare *fortiter* (*b*).

11 Write in direct discourse *quam rem . . . tribui* (*a*). Change *proelii committendi* (*b*) to the gerund construction.

12 Decline *postulandi* (*a*). Decline the following in the singular: *equis*, *munera* (*a*), *illum* (*a*) in the neuter, *alteram partem* (*b*); the following in the plural: *officiis* (*a*), *longiore oratione* (*b*), *pugnantibus* (*b*) in the masculine.

13 Write an account of Caesar's first invasion of Britain. Describe the *aquilam* (*c*) and state its use.

14 Write the second person singular of *each* of the tenses of the indicative and subjunctive of *vultis* (*c*). Write the active and passive infinitives and the active and passive participles (including gerundive) of *retinerent* (*b*).

15 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *orationis* (*a*), *prodere*, *praestitero* (*c*). Mention an English word derived from the stem of *rex*, *officiis* (*a*), *animo* (*b*), *maris* (*c*).

High School Department

180TH EXAMINATION

CAESAR'S COMMENTARIES

Tuesday, January 26, 1904 — 1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but no more. *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1-5 Translate into English:

a THE MISTAKE OF CONSIDIUS DEFEATS CAESAR'S PLAN

Caesar suas copias in proximum *collem* subducit, *aciem* instruit. Labienus, ut erat ei praeceptum a Caesare, ne proelium *committeret*, nisi ipsius copiae prope hostium castra *visae essent*, ut undique uno *tempore* in hostes impetus *fieret*, monte occupato nostros *exspectabat proelio*que abstinebat. *Multo* denique *die* per exploratores Caesar *cognovit et montem* a suis teneri et Helvetios castra *movisse* et Considium timore *perterritum*, quod non vidisset, pro viso *sibi renuntiasse*.—1, 22

b THE OPPOSING LINES AWAIT EACH OTHER

Hoc facto duabus *legionibus* quas *proxime conscripserat* in castris relictis, ut, si quo opus *esset*, *subsidio duci* possent, reliquas sex legiones pro castris in acie constituit. Hostes item suas copias ex castris eductas instruxerant.

Palus erat non magna inter nostrum atque *hostium* exercitum. Hanc si nostri *transirent*, hostes exspectabant; nostri autem, si ab illis *initium* transeundi fieret, ut *impeditos* aggrederentur, parati in armis erant. Interim proelio equestri inter duas acies contendebatur. Ubi neutri transeundi initium faciunt, secundiore equitum proelio nostris, Caesar suos in castra reduxit.—2, 8-9

c CRASSUS DEFEATS THE SONTIATES

Pugnatum est diu atque acriter, cum Sontiates *superioribus* victoriis freti in sua virtute *totius Aquitaniae salutem* positam *putarent*, nostri autem, quid sine imperatore et sine *reliquis legionibus* adulescentulo duce efficere possent, perspici cuperent: tandem confecti *vulneribus* hostes terga *vertere*. *Quorum* magno numero interfecto Crassus ex itinere oppidum Sontiatum *oppugnare* coepit. Quibus fortiter resistentibus *vineas turres*que *egit*.—3, 21

6 Translate into Latin [Do not use rare or poetic constructions]:

a Labienus must seize the mountain with the two legions that he has with him.

b The scouts were so terrified that they were not able to find out the number of the enemy.

c He says that he is ready to begin.

7 Translate into Latin [Do not use rare or poetic constructions]:

a Caesar is about to join battle with the Helvetians.

b Crassus desired to lead his army out from the camp in order that he might attack the Sontiates.

c Why did not the enemy cross the marsh that is very near their town?

8 Give the reason for the case of *proelio*, *sibi* (*a*), *subsidio*, *hostium* (*b*), *vulneribus* (*c*); for the mode of *fieret* (*a*), *esset*, *transirent* (*b*), *putarent*, *oppugnare* (*c*).

9 Write the principal parts of *cognovit*, *perterritum* (*a*), *conscripserat* (*b*), *putarent*, *egit* (*c*).

10 Write in direct discourse *et montem . . . renuntiasse* (*a*).

11 Give the reason for the case of *die* (*a*), *legionibus* (*b*), *salutem*, *quorum* (*c*); for the mode of *committeret*, *visae essent* (*a*). Give the force of the tense of *exspectabat* (*a*). Compare *multo* (*a*), *proxime* (*b*), *superioribus* (*c*).

12 Describe the *aciem* (*a*) as usually formed in Caesar's time for making an attack. Describe the construction and explain the use of *each* of the following: *vineas*, *turres* (*c*).

13 Decline throughout *collem* (*a*), *subsidio* (*b*), *reliquis legionibus* (*c*). Decline *totius Aquitaniae* (*c*).

14 Select from questions 1–5 an ablative of place where, an ablative of agent. Conjugate *movisse* (*a*) in the future indicative active, in the pluperfect subjunctive active, in the future perfect indicative passive, in the imperfect subjunctive passive.

15 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *committeret* (*a*), *initium*, *impeditos* (*b*). Give an English word containing the stem of *tempore* (*a*), *duci* (*b*), *vulneribus*, *vertere* (*c*).

University of the State of New York

High School Department

181ST EXAMINATION

CAESAR'S COMMENTARIES

Friday, March 25, 1904—1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a THE CRITICAL CONDITION OF THE ROMAN ARMY

Caesari omnia uno *tempore* erant agenda: *vexillum* proponendum, quod erat insigne, cum ad arma concurri oporteret, signum *tuba* dandum, ab opere revocandi milites, qui paulo longius aggeris petendi causa processerant, arcessendi, *acies instruenda,* milites cohortandi, signum dandum. Quarum rerum magnam partem temporis brevitas et successus hostium *impediebat. His difficultatibus* duae res erant *subsidio,* scientia atque *usus* militum, quod superioribus proeliis exercitati, quid fieri *oporteret,* non *minus* commode ipsi sibi *praescribere* quam ab aliis doceri poterant. —2, 20

b THE POWER OF THE VENETI

Huius est *civitatis longe* amplissima auctoritas omnis *orae* maritimae regionum earum, quod et naves habent Veneti plurimas, *quibus* in Britanniam *navigare consuerunt,* et *scientia* atque usu nauticarum *rerum* reliquos antecedunt et in *magno impetu maris* atque aperto, paucis portibus interiectis, quos tenent ipsi, omnes fere, qui eo mari uti consuerunt, habent vectigales. Ab his fit initium retinendi Silii atque Velanii, quod per eos suos *se* obsides, quos Crasso *dedissent,* recuperaturos existimabant. —3, 8

c THE MESSAGE OF THE GERMANS

Re frumentaria *comparata equitibus*que *delectis* iter in ea loca facere coepit, quibus in locis *esse* Germanos *audiebat.* A quibus cum paucorum *dierum iter abesset,* legati ab his venerunt, quorum haec fuit oratio: *Germanos* neque *priores populo* Romano bellum inferre, neque tamen recusare, si lacessantur, quin armis *contendant,* quod Germanorum consuetudo sit a maioribus *tradita, quicumque* bellum inferant, *resistere* neque *deprecari.* —4, 7

6 Translate into Latin [Do not use rare or poetic constructions]:

(*a*) Ambassadors will be chosen by the Germans to go to Caesar with hostages, (*b*) The time was so short that the signal could not be given, (*c*) He thought that the Veneti had more ships than any other tribe of Gaul.

7 Translate into Latin [Do not use rare or poetic constructions]:

(*a*) Caesar must have all his cavalry, since the Germans are about to make war on him, (*b*) Why do you not recall the soldiers and form your line of battle? (*c*) Caesar said, "Soldiers, resist the attack of the enemy."

8 Give the reason for the case of *Caesari* (*a*), *scientia*, *se* (*b*), *equitibus* (*c*), *iter* (*c*, line 3); for the mode of *oporteret* (*a*, line 9), *praescribere* (*a*), *dedissent* (*b*), *abesset*, *resistere* (*c*).

9 Write the principal parts of *instruenda*, *impediebat* (*a*), *consuerunt* (*b*), *comparata*, *tradita* (*c*).

10 Give the reason for the case of *tempore*, *subsidio* (*a*), *civitatis*, *orae*, *quibus*, *rerum* (*b*), *dierum*, *populo* (*c*); for the mode of *esse*, *contendant* (*c*).

11 Write in direct discourse *Germanos* (*c*, line 4) . . . *deprecari* (*c*).

12 Decline the following in the singular: *acies*, *his difficultatibus* (*a*), *magno impetu* (*b*), *priores* (*c*) in the neuter; the following in the plural: *maris* (*b*), *quicumque* (*c*) in the feminine. Compare *minus* (*a*), *longe* (*b*).

13 Draw an outline map of Gaul, indicating, with name, the location of each of *five* of the following: Bibracte, the Veneti, the Belgae, the Aedui, the Aquitani, the Jura mountains, the Seine river, the Rhone river.

14 Write the second person singular of *each* of the tenses of the indicative, subjunctive and imperative passive of *audiebat* (*c*). Describe *each* of the following and explain the use of each: *vexillum*, *tuba* (*a*).

15 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *usus* (*a*), *navigare* (*b*), *delectis* (*c*). Give, with meaning, the Latin words from which the following are derived: biennial, subsequent, dispose, progress.

University of the State of New York

High School Department

182D EXAMINATION

CAESAR'S COMMENTARIES

Tuesday, June 14, 1904 — 1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1-5 Translate into English:

a CAESAR PREPARES FOR BATTLE

Postquam id animum advertit, copias suas Caesar in *proximum* collem subducit equitatumque, qui *sustineret hostium* impetum, misit. Ipse interim in colle medio triplicem *aciem* instruxit *legionum* quattuor veteranarum; in summo iugo *duas* legiones, quas in Gallia citeriore proxime conscripserat, et omnia auxilia collocari ac totum montem *hominibus* compleri et *interea* sarcinas in unum locum *conferri* et eum ab his, qui in superiore acie *constiterant*, muniri iussit.—1, 24

b THE BELGIANS ATTACK BIBRAX

Ab *his castris* oppidum Remorum *nomine* Bibrax aberat milia *passuum* octo. Id ex *itinere magno impetu* Belgae oppugnare coeperunt. *Aegre* eo die sustentatum est. Gallorum eadem atque Belgarum oppugnatio est haec. Ubi circumiecta multitudine hominum totis *moenibus* undique in murum lapides iaci coepti sunt murusque *defensoribus* nudatus est, *testudine* facta portas *succedunt*, murumque subruunt. Quod tum facile fiebat. Nam cum tanta multitudo lapides ac tela *conicerent*, in muro consistendi potestas erat nulli.— 2, 6

c CAESAR REPLIES TO THE GERMAN AMBASSADORS

Ad haec, quae visum est, Caesar respondit; sed exitus fuit orationis: sibi *nullam* cum his *amicitiam* esse posse, si in Gallia *remanerent;* neque verum esse, qui suos fines tueri non potuerint, *alienos occupare;* neque ullos in Gallia vacare *agros*, qui *dari* tantae praesertim multitudini sine *iniuria possint; sed licere*, si *velint*, in Ubiorum finibus considere, quorum sint legati apud *se* et de Sueborum iniuriis *querantur* et a se auxilium *petant:* hoc se *Ubiis imperaturum.*— 4, 8

6 Translate into Latin [Do not use rare or poetic constructions]:

a The place in which Caesar is about to station the legion is a mile distant.

b He ordered his whole army to be brought together, since he wished to besiege the city.

c Ambassadors came to Caesar to complain in regard to this.

7 Translate into Latin [Do not use rare or poetic constructions]:

a There was so great a multitude of the enemy drawn up in line of battle that our forces were not able to withstand the attack.

b It is not easy to capture a town when its defenders are hurling stones from the walls.

8 Give the reason for the case of *hostium* (*a*), *nomine*, *defensoribus* (*b*), *agros*, *Ubiis* (*c*); for the mode of *sustineret*, *conferri* (*a*), *conicerent* (*b*), *occupare*, *possint* (*c*).

9 Write the principal parts of *sustineret*, *constiterant* (*a*), *succedunt* (*b*), *dari*, *querantur* (*c*).

10 Write in direct discourse *sed licere . . . imperaturum* (*c*).

11 Give the reason for the case of *legionum*, *hominibus* (*a*), *impetu*, *moenibus*, *testudine* (*b*); for the mode and tense of *remanerent* (*c*); for the number of *conicerent* (*b*). Compare *proximum* (*a*), *aegre* (*b*).

12 Describe by diagram or otherwise the usual plan of a Roman camp in the Gallic campaigns, showing (*a*) the location of the gates and of the principal streets, (*b*) the fortifications.

13 Decline *duas* (*a*) in the neuter. Decline the following in the singular: *aciem* (*a*), *passuum* (*b*), *nullam amicitiam*, *se* (*c*); the following in the plural: *his castris*, *itinere*, *moenibus* (*b*).

14 Select from questions 1–5 a noun in apposition, a partitive genitive, a dative of possession, a gerund, a substantive clause. Write the second person singular of *each* of the tenses of the subjunctive, active and passive, of *occupare* (*c*). Write the infinitives of *velint* (*c*).

15 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *interea* (*a*), *nullam*, *iniuria* (*c*). Mention an English word derived from the stem of *nomine*, *magno* (*b*), *alienos*, *petant* (*c*).

University of the State of New York

High School Department

180TH EXAMINATION

SALLUST'S CATILINE

Thursday, January 28, 1904—9.15 a. m. to 12.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1-5 Translate into English:

a THE FOUNDING OF ROME

Urbem *Romam*, sicuti *ego* accepi, condidere atque habuere initio *Troiani*, qui *Aenea* duce profugi, sedibus incertis, *vagabantur*, cumque eis Aborigines, genus hominum agreste, sine legibus sine imperio, liberum atque *solutum*. Hi postquam in una moenia convenere, dispari *genere*, *dissimili lingua*, alii alio *more* viventes, incredibile memoratu est quam *facile coaluerint:* ita brevi *multitudo* dispersa atque vaga concordia civitas facta erat. Sed postquam res eorum, civibus, moribus, agris aucta, satis prospera satisque pollens *videbatur*, sicuti pleraque mortalium habentur, invidia ex opulentia orta est.—6

b EXTRACT FROM THE LETTER OF MANLIUS

Deos hominesque testamur, *imperator*, nos arma neque contra patriam cepisse neque quo periculum aliis faceremus, sed uti *corpora* nostra ab iniuria tuta *forent*, qui *miseri*, egentes, *violentia* atque crudelitate faeneratorum plerique *patriae*, sedis, omnes fama atque fortunis expertes sumus. Neque *cuiquam nostrum* licuit more maiorum lege uti neque amisso patrimonio liberum corpus *habere:* tanta saevitia faeneratorum atque praetoris fuit.—33

c CATO'S REPLY TO CAESAR

Qua re, cum de P. Lentulo ceterisque *statuetis*, pro certo habetote vos simul de *exercitu Catilinae* et de omnibus coniuratis *decernere*. Quanto vos attentius ea agetis, tanto illis animus *infirmior* erit: si paululum modo vos languere viderint, iam omnes feroces aderunt.

Nolite existumare maiores nostros *armis* rem publicam ex *parva* magnam *fecisse*. Si ita res *esset*, multo pulcherrumam eam nos *haberemus:* quippe *sociorum* atque civium, praeterea armorum atque equorum maior copia *nobis* quam illis est.—52

6 Translate into Latin [Do not use rare or poetic constructions]:

(*a*) The Trojans will wander many years before they are permitted to found a new city, (*b*) We should have captured the fortifications if our allies had been present, (*c*) Would that I might see you!

7 Translate into Latin [Do not use rare or poetic constructions]:

(*a*) He says that he has a great abundance of those things that you have mentioned, (*b*) It is not easy to decide whether or not these nations are weaker than ours, (*c*) Let us live in peace so that the state may not be in danger.

8 Give the reason for the case of ***solutum***, ***genere***, ***more*** (*a*), ***cuiquam*** (*b*), ***armis*** (*c*); for the mode of ***coaluerint*** (*a*), ***forent***, ***habere*** (*b*), ***fecisse***, ***esset*** (*c*).

9 Decline throughout ***dissimili lingua*** (*a*), ***deos*** (*b*), ***infirmior*** (*c*) in the masculine, ***nobis*** (*c*).

10 Write the second person plural of *each* of the tenses of the indicative, subjunctive and imperative, active, of ***videbatur*** (*a*). Write the principal parts of ***vagabantur*** (*a*), ***statuetis*** (*c*).

11 Give the reason for the case of *Romam*, *Aenea* (*a*), *violentia*, ***patriae***, ***nostrum*** (*b*), *Catilinae*, ***nobis*** (*c*); for the tense of ***haberemus*** (*c*). Compare ***miseri*** (*b*), ***parva*** (*c*).

12 Explain the reference in *Troiani . . . vagabantur* (*a*), *exercitu Catilinae* (*c*). Discuss the laws concerning debtors in the time of Catiline. Mention the duties of the praetor. Distinguish in meaning ***statuetis*** (*c*) and ***decernere*** (*c*).

13 Sketch the life and character of Catiline, touching specially on his connection with the conspiracy.

14 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: ***multitudo*** (*a*), ***imperator*** (*b*), ***infirmior*** (*c*). Mention an English word derived from the stem of *ego*, *facile* (*a*), *corpora* (*b*), *sociorum* (*c*).

15 Translate into English:

Nam postquam Cn. Pompeio et M. Crasso consulibus tribunicia potestas restituta est, homines adulescentes summam potestatem nacti, quibus aetas animusque ferox erat, coepere senatum criminando plebem exagitare, dein largiundo atque pollicitando magis incendere, ita ipsi clari potentesque fieri.—38

University of the State of New York

High School Department

182D EXAMINATION

SALLUST'S CATILINE

Thursday, June 16, 1904—9.15 a. m. to 12.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a THE EARLY GOVERNMENT OF THE ROMAN STATE

At Romani domi *militiae*que intenti festinare, parare, alius alium hortari, hostibus obviam *ire*, libertatem patriam parentisque armis tegere. Post ubi pericula *virtute propulerant*, sociis atque *amicis auxilia* portabant, magisque *dandis* quam accipiundis *beneficiis* amicitias parabant. *Imperium* legitumum, nomen imperi regium habebant. *Delecti*, *quibus* corpus *annis* infirmum, ingenium sapientia *validum* erat, rei publicae *consultabant;* ei vel aetate vel curae similitudine patres appellabantur.—6

b THE ARREST OF THE ALLOBROGES

His *rebus* ita actis, *constituta nocte qua proficiscerentur*, Cicero per legatos cuncta edoctus L. Valerio Flacco et C. Pomptino praetoribus imperat, ut in ponte Mulvio per *insidias* Allobrogum *comitatus deprehendant*. Rem omnem aperit, cuius *gratia* mittebantur; cetera, uti facto opus *sit*, ita agant, permittit. Illi, homines militares, sine tumultu praesidiis conlocatis, sicuti praeceptum erat, occulte pontem obsidunt. Postquam ad id *loci* legati cum Volturcio venerunt et simul utrimque clamor exortus est, Galli cito *cognito* consilio sine mora praetoribus se *tradunt*.—45

c CAESAR'S SPEECH FOR CLEMENCY

Omnia mala exempla ex rebus bonis orta sunt. Sed ubi imperium ad ignaros *eius* aut *minus* bonos pervenit, *novom* illud exemplum ab *dignis* et idoneis ad indignos et non idoneos transfertur. Lacedaemonii *devictis Atheniensibus triginta viros* inposuere, qui rem publicam eorum tractarent. Ei primo coepere pessumum *quemque* et *omnibus* invisum indemnatum *necare:* ea populus laetari et merito *dicere fieri*. Post ubi paulatim *licentia* crevit, iuxta bonos et malos lubidinose interficere, ceteros metu terrere: ita civitas servitute *obpressa* stultae laetitiae gravis poenas dedit.—51

6 Translate into Latin [Do not use rare or poetic constructions]: (*a*) Do not choose evil men to manage the affairs of th

state, (*b*) We must defend our country in this time of danger, (*c*) If Cicero should be informed of the plans of the Allobroges, he would order their legates to be arrested by the praetors.

7 Translate into Latin [Do not use rare or poetic constructions]: (*a*) He said that many of the best citizens had been put to death by the thirty men whom the Lacedaemonians had placed over the Athenian republic, (*b*) You will be able to station guards near the bridge, provided that there is no delay.

8 Give the reason for the case of *militiae*, *amicis*, *annis* (*a*), *rebus* (*b*), *eius*, *omnibus* (*c*); for the mode of *ire* (*a*), *proficiscerentur*, *sit* (*b*), *necare* (*c*).

9 Decline the following in the singular: *auxilia* (*a*), *comitatus* (*b*), *quemque* (*c*) in the neuter; the following in the plural: *constituta nocte* (*b*), *devictis Atheniensibus* (*c*). Compare *validum* (*a*), *minus*, *novom* (*c*).

10 Give the reason for the case of *virtute*, *quibus* (*a*), *qua*, *loci* (*b*); for the mode of *deprehendant* (*b*), *fieri* (*c*). Mention the class of derivatives to which *each* of the following belongs and give the derivation of each: *consultabant* (*a*), *proficiscerentur* (*b*).

11 Write the active and passive infinitives, the active and passive participles, including gerundive, and the supines of *dicere* (*c*). Write the principal parts of *tradunt* (*b*), *obpressa* (*c*).

12 Explain the reference in *delecti* . . . *consultabant* (*a*), *devictis Atheniensibus*, *triginta viros* (*c*). Change *dandis* . . . *benificiis* (*a*) to the gerund construction. Select from questions 1–5 an ablative of accompaniment, an ablative of source.

13 Write Latin sentences illustrating *three* of the following: supine in *u*, potential subjunctive, concessive clause, indirect question, substantive clause of result.

14 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *propulerant* (*a*), *insidias* (*b*), *licentia* (*c*). Mention an English word derived from the stem of *imperium* (*a*), *gratia*, *cognito* (*b*), *dignus* (*c*).

15 Translate into English:

Interea Manlius in Etruria plebem sollicitare, egestate simul ac dolore iniuriae novarum rerum cupidam, quod Sullae dominatione agros bonaque omnia amiserat; praeterea latrones cuiusque generis, quorum in ea regione magna copia erat; non nullos ex Sullanis coloniis, quibus lubido atque luxuria ex magnis rapinis nihil reliqui fecerat.—28

University of the State of New York

High School Department

180TH EXAMINATION

CICERO'S ORATIONS

Friday, January 29, 1904—9.15 a. m. to 12.15 p. m., only

Answer the first six questions and four of the others but no more. *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a CATILINE'S DEATH WOULD BE ONLY A TEMPORARY RELIEF

Ut saepe *homines* aegri *morbo gravi* cum aestu febrique iactantur, si *aquam* gelidam biberunt, primo relevari videntur, deinde multo gravius vehementiusque adflictantur, sic hic morbus, qui est in re publica, relevatus *istius poena vehementius reliquis* vivis *ingravescet.* Quare *secedant inprobi*, secernant se a bonis, unum in locum congregentur, *muro* denique, quod saepe iam dixi, secernantur a nobis; desinant *insidiari domi* suae *consuli.*—*In Catilinam*, 1, 13

b THE LETTERS ARE PRODUCED

Introductus est Statilius; *cognovit* et signum et manum suam. Recitatae sunt tabellae in eandem fere sententiam; *confessus est.* Tum ostendi *tabellas Lentulo* et quaesivi, *cognosceretne* signum. Adnuit. "Est vero," inquam, "notum quidem signum, imago avi tui, clarissimi *viri*, qui amavit unice patriam et cives suos; quae quidem te a tanto scelere etiam *muta revocare* debuit." Leguntur eadem ratione ad senatum Allobrogum populumque litterae.—*In Catilinam*, 3, 5

c ARCHIAS WAS ENROLLED AS A CITIZEN

Nam, cum Appi tabulae *neglegentius* adservatae *dicerentur*, Gabini, quamdiu incolumis fuit, *levitas*, post damnationem calamitas omnem tabularum *fidem* resignasset, Metellus, homo sanctissimus modestissimusque *omnium*, tanta *diligentia* fuit, ut ad L. Lentulum praetorem et ad iudices *venerit* et unius nominis litura *se* commotum esse dixerit. His igitur in tabulis nullam lituram in nomine A. Licini videtis. Quae cum ita *sint*, quid est, quod de eius civitate *dubitetis*, praesertim cum *aliis* quoque in *civitatibus* fuerit adscriptus?—*Pro Archia Poeta*, 5

6 Translate into Latin [Do not use rare or poetic constructions]: (*a*) A man sick with fever must drink cold water if he wishes to be relieved, (*b*) I shall ask him whether or not he wrote these letters, (*c*) There are some who have for a long time been lying in wait for the best citizens of the state.

7 Translate into Latin [Do not use rare or poetic constructions]: (*a*) He says that it will be a great misfortune to the republic if these men do not withdraw from the city while there is time, (*b*) Since the records were kept so negligently, all confidence in them was destroyed.

8 Give the reason for the case of *morbo*, *consuli* (*a*), *Lentulo* (*b*), *omnium*, *se* (*c*); for the mode of *secedant* (*a*), *cognosceret* (*b*), *dicerentur*, *venerit*, *dubitetis* (*c*).

9 Decline throughout *morbo gravi* (*a*), *aliis civitatibus* (*c*). Decline in the singular *fidem* (*c*). Compare *vehementius* (*a*).

10 Write the second person singular of *each* of the tenses of the indicative, subjunctive and imperative active of *venerit* (*c*). Write the principal parts of *confessus est* (*b*), *dubitetis* (*c*).

11 Give the reason for the case of *istius*, *reliquis*, *muro*, *domi* (*a*), *viri* (*b*), *diligentia* (*c*); for the mode of *revocare* (*b*), *sint* (*c*). Mention the class of derivative verbs to which *ingravescet* (*a*) belongs and give its derivation.

12 Give an account of the conspiracy of Catiline, covering (*a*) cause, (*b*) purpose, (*c*) suppression.

13 Distinguish in meaning *homines* (*a*) and *viri* (*b*). Select from (*a*) *two* figures of speech and define each figure selected. Explain the reference in *insidiari* . . . *consuli* (*a*). Describe the *tabellas* (*b*) and explain their use.

14 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *inprobi* (*a*), *neglegentius*, *levitas* (*c*). Mention an English word derived from the stem of *aquam*, *poena* (*a*), *cognovit*, *muta* (*b*).

15 Translate into English:

Est haec divina atque incredibilis virtus imperatoris. Quid? Ceterae, quas paulo ante commemorare coeperam, quantae atque quam multae sunt! Non enim bellandi virtus solum in summo ac perfecto imperatore quaerenda est, sed multae sunt artes eximiae huius administrae comitesque virtutis.

—*Pro Lege Manilia*, 13

High School Department

181ST EXAMINATION

CICERO'S ORATIONS

Friday, March 25, 1904—9.15 a. m. to 12.15 p. m., only

Answer the first six questions and four of the others but* no more. *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1–5 Translate into English:

a THE PLANS OF CATILINE ARE KNOWN

Quaesivi a Catilina, *in nocturno* conventu apud *M. Laecam fuisset* necne. Cum ille homo audacissimus *conscientia* convictus primo reticuisset, patefeci cetera; quid ea *nocte* egisset, quid in proximam constituisset, quem ad modum esset *ei* ratio totius belli descripta, *edocui*. Cum haesitaret, cum *teneretur*, quaesivi, quid dubitaret proficisci eo, quo iam pridem *pararet*, cum arma, cum *secures*, cum *fasces*, cum tubas, cum *signa militaria*, cum aquilam illam argenteam, *cui* ille etiam *sacrarium domi* suae fecerat, *scirem* esse *praemissam*.—*In Catilinam*, 2, 6

b CICERO URGES THE SENATORS TO ACT

Quae cum ita sint, patres conscripti, *vobis* populi Romani praesidia non desunt; vos ne populo Romano *deesse videamini*, providete. Habetis consulem ex plurimis periculis et insidiis atque ex media morte non ad vitam suam, sed ad salutem vestram reservatum. Omnes ordines ad conservandam rem publicam *mente*, voluntate, studio, virtute, voce consentiunt. *Obsessa facibus* et *telis impiae coniurationis* vobis *supplex* manus tendit patria communis.—*In Catilinam*, 4, 8–9

c THE ALLIES ASK FOR POMPEY TO DEFEND THEM

Hi vos, quoniam *libere loqui* non licet, tacite rogant, ut se quoque sicut ceterarum provinciarum socios, dignos *existimetis*, quorum salutem tali viro *commendetis*, atque hoc etiam magis, quod ceteros in provinciam eius *modi* homines cum imperio mittimus, ut, etiamsi ab hoste *defendant*, tamen ipsorum *adventus* in urbes sociorum non multum ab hostili expugnatione differant. Hunc audiebant antea, nunc praesentem vident tanta temperantia, tanta mansuetudine, tanta *humanitate*, ut ii *beatissimi* esse *videantur*, apud quos ille *diutissime* commoratur.

—*Pro Lege Manilia*, 5

6 **Translate** into Latin [Do not use rare or poetic constructions]: (*a*) If we had agreed concerning this matter, we should not have been in so much danger, (*b*) We must send our best

general with an army into the province that our allies may be defended against the attacks of the enemy.

7 Translate into Latin [Do not use rare or poetic constructions]: (*a*) He is the most worthy man at Rome to whom to intrust the safety of the state at this time, (*b*) He asked the senate why it did not provide a guard for the consul, (*c*) Do not hesitate to disclose what you know.

8 Give the reason for the case of *nocte*, *ei* (*a*), *vobis* (*b*, line 1), *humanitate*, *beatissimi* (*c*); for the mode of *fuisset*, *teneretur* (*a*), *deesse* (*b*), *loqui*, *videantur* (*c*).

9 Decline the following in the singular: *signa militaria* (*a*), *vobis*, *facibus* (*b*), *adventus* (*c*); the following in the plural: *domi* (*a*), *impiae coniurationis* (*b*). Compare *libere*, *diutissime* (*c*).

10 Give the reason for the case of *cui*, *domi* (*a*), *mente*, *telis* (*b*), *modi* (*c*); for the mode of *pararet* (*a*), *videamini* (*b*), *existimetis*, *commendetis*, *defendant* (*c*).

11 Write the second person plural of *each* of the tenses of the subjunctive, active and passive, and the active and passive participles, including gerundive, of *edocui* (*a*). Write the principal parts of *scirem* (*a*), *obsessa* (*b*).

12 Explain the reference in *secures* and *fasces* (*a*) and state their use. Explain the reference in *in nocturno . . . M. Laecam*, *sacrarium* (*a*). Account for the gender, number and case of *praemissam* (*a*). Select from (*b*) a rhetorical figure and define the figure selected.

13 Give an account of the circumstances that induced Cicero to deliver the oration for the Manilian law.

14 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *conscientia* (*a*), *coniurationis*, *supplex* (*b*). Give the derivation of *each* of the following, stating the meaning of stem and suffix: *sacrarium* (*a*), *humanitate* (*c*).

15 Translate into English:

Quare conservate, iudices, hominem pudore eo, quem amicorum videtis comprobari cum dignitate, tum etiam vetustate, ingenio autem tanto, quantum id convenit existimari, quod summorum hominum ingeniis expetitum esse videatis, causa vero eius modi, quae beneficio legis, auctoritate municipi, testimonio Luculli, tabulis Metelli comprobetur.—*Pro Archia Poeta*, 12

University of the State of New York

High School Department

182D EXAMINATION

CICERO'S ORATIONS

Friday, June 17, 1904—9.15 a. m. to 12.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1-5 Translate into English:

a CICERO ENTREATS CATILINE TO GO INTO EXILE

Utinam tibi *istam mentem di inmortales duint!* Tametsi video, si mea voce perterritus ire in exsilium *animum* induxeris, quanta tempestas invidiae *nobis*, si *minus* in praesens *tempus recenti memoria scelerum* tuorum, at in posteritatem *impendeat.* Sed est *tanti*, dum modo ista *sit* privata calamitas et a rei publicae periculis seiungatur. Sed tu ut *vitiis* tuis commoveare, ut legum poenas pertimescas, ut temporibus rei publicae cedas, non est postulandum.—*In Catilinam*, 1, 9

b VOLTURCIUS IS BROUGHT BEFORE THE SENATE

Introduxi Volturcium sine Gallis; fidem publicam iussu *senatus* dedi; hortatus sum, ut ea, quae *sciret*, sine timore indicaret. Tum ille dixit, cum vix se ex magno timore *recreasset*, a P. Lentulo se habere ad Catilinam mandata et litteras, ut servorum praesidio *uteretur*, ut ad urbem quam *primum* cum exercitu accederet; id *autem* eo consilio, ut, cum urbem ex omnibus partibus, quem ad modum descriptum distributumque erat, *incendissent* caedemque infinitam *civium* fecissent, praesto esset ille qui et fugientis exciperet et se cum *his urbanis ducibus coniungeret.*—*In Catilinam*, 3, 4

c MANY WOULD GLADLY HAVE GIVEN ARCHIAS CITIZENSHIP

Itaque, credo, si *civis* Romanus Archias legibus non *esset*, ut ab *aliquo imperatore civitate donaretur*, *perficere* non potuit. Sulla cum Hispanos et Gallos donaret, credo, hunc petentem repudiasset; *quem* nos in contione vidimus, cum ei *libellum malus poeta* de populo subiecisset, quod epigramma in eum fecisset tantum modo alternis *versibus* longiusculis statim ex iis *rebus*, quas tum *vendebat*, *iubere* ei praemium tribui, sed *ea condicione*, ne quid postea *scriberet.*—*Pro Archia Poeta*, 10

6 Translate into Latin [Do not use rare or poetic constructions]: (*a*) Would that the danger that threatens Catiline might frighten him! (*b*) There are some who say that Lentulus will join the forces of Catiline when they approach the city, (*c*) Could we refuse Archias, if he should ask for citizenship?

7 Translate into Latin [Do not use rare or poetic constructions]: (*a*) I fear that Lentulus will employ slaves for the purpose of burning the city, (*b*) Do you know whether or not letters have been given to Volturcius by any one at Rome? (*c*) Do not demand this of him.

8 Give the reason for the case of *nobis*, *tanti* (*a*), *civium* (*b*), *civitate*, *quem* (*c*); for the mode of *impendeat* (*a*), *sciret*, *coniungeret* (*b*), *esset*, *perficere* (*c*).

9 Decline the following in the singular: *nobis* (*a*), *aliquo imperatore*, *malus poeta* (*c*); the following in the plural: *di inmortales* (*a*), *senatus* (*b*), *ea condicione* (*c*).

10 Write the second person singular of *each* of the tenses of the indicative and subjunctive of *uteretur* (*b*); the present participle and the gerundive of *uteretur* (*b*). Write the principal parts of *incendissent* (*b*), *iubere* (*c*).

11 Give the reason for the case of *memoria* (*a*), *senatus* (*b*), *versibus* (*c*); for the mode of *duint*, *sit* (*a*), *recreasset* (*b*), *donaretur*, *scriberet* (*c*). Compare *minus*, *recenti* (*a*).

12 Write an account of *two* of the following: Sulla, Lentulus, Archias.

13 Distinguish in meaning *mentem* and *animum* (*a*), *scelerum* and *vitiis* (*a*). Explain the reference in *his urbanis ducibus* (*b*), *rebus . . . vendebat* (*c*). Explain the force of *istam* (*a*). Account for the position of *autem* (*b*).

14 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *impendeat* (*a*), *senatus* (*b*), *libellum* (*c*). Write an English word derived from the stem of *tempus* (*a*), *primum*, *urbanis* (*b*), *civis* (*c*).

15 Translate into English:

Difficile est dictu, Quirites, quanto in odio simus apud exteras nationes propter eorum, quos ad eas per hos annos cum imperio misimus, libidines et iniurias. Quod enim fanum putatis in illis terris nostris magistratibus religiosum, quam civitatem sanctam, quam domum satis clausam ac munitam fuisse?

—*Pro Lege Manilia*, 22

University of the State of New York

High School Department

180TH EXAMINATION

VIRGIL'S AENEID

Tuesday, January 26, 1904 — 1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a THE APPEAL OF ILIONEUS

Quassatam *ventis* liceat *subducere* classem
et *silvis* aptare trabes et stringere remos,
si *datur* Italiam sociis et rege recepto
tendere, ut Italiam *laeti* Latiumque *petamus;*
sin absumpta salus, et te, pater *optume* Teucrum,
pontus habet Libyae nec *spes* iam restat *Iuli*,
at freta Sicaniae saltem *sedes*que paratas,
unde huc advecti, *regem*que petamus *Acesten.*—1, 551–558

b THE STORY OF THE RESCUED ACHEMENIDES

Ipse pater *dextram* Anchises haud multa *moratus*
dat *iuveni* atque animum *praesenti pignore* firmat.
Ille haec *deposita* tandem *formidine* fatur:
"Sum patria ex Ithaca, *comes infelicis Ulixi*,
nomine Achaemenides, *Troiam* genitore Adamasto
paupere (*mansisset*que utinam fortuna!) profectus.
Hic me, dum trepidi crudelia limina linquunt,
inmemores socii vasto *Cyclopis* in *antro*
deseruere."— 3, 610–618

c THE APPROACH TO PLUTO'S PALACE

Haec ubi dicta dedit *Phoebi* longaeva sacerdos:
"Sed iam age, carpe viam et *susceptum* perfice *munus.*
Adceleremus" ait: "Cyclopum educta caminis
moenia conspicio atque adverso fornice portas,
haec ubi nos praecepta iubent *deponere* dona."
Dixerat et pariter gressi per *opaca viarum*
corripiunt spatium medium *foribus*que propinquant.
Occupat Aeneas aditum *corpus*que *recenti*
spargit *aqua* ramumque adverso in limine *figit.*— 6, 628–636

6 Translate into Latin [Do not use rare or poetic constructions]: (*a*) If Aeneas were here we should set out for Italy with the fleet, (*b*) May we not delay long in the kingdom of Libya, (*c*) He ordered his companions to seek the cave of the Cyclops.

7 Translate into Latin [Do not use rare or poetic constructions]: (*a*) They have left their native land to prepare new homes in Latium, (*b*) There are two roads by which we may approach the city, (*c*) Let us hasten with Aeneas to a place of safety.

8 Give the reason for the case of *ventis*, *Iuli* (*a*), *iuveni*, *nomine* (*b*), *foribus* (*c*); for the mode of *subducere* (*a*), *petamus* (*a*, line 4), *mansisset* (*b*), *adceleremus*, *deponere* (*c*).

9 Decline *Acesten* (*a*), *Ulixi* (*b*). Decline throughout *formidine*, *antro* (*b*), *recenti aqua* (*c*).

10 Write the second person singular of *each* of the tenses of the indicative, subjunctive and imperative, passive, of *datur* (*a*). Write the principal parts of *tendere* (*a*), *figit* (*c*).

11 Give the reason for the case of *silvis* (*a*), *formidine*, *comes*, *Troiam* (*b*), *Phoebi* (*c*). Write the corresponding prose construction for *opaca viarum* (*c*). Compare *laeti*, *optume* (*a*), *infelicis* (*b*), *recenti* (*c*).

12 Explain the reference in *spes . . . Iuli*, *regem Acesten* (*a*), *infelicis Ulixi*, *Cyclopis* (*b*), *susceptum . . . munus* (*c*).

13 Write the first *three* lines of (*b*), indicating quantity of syllables, division into feet and principal cesuras. Give the rule for the quantity of the penult of *moratus*, *pignore;* of the ultima of *deposita*, *formidine*.

14 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *sedes* (*a*), *praesenti*, *comes* (*b*). Mention an English word derived from the stem of *silvis* (*a*), *dextram*, *nomine* (*b*), *corpus* (*c*).

15 Translate into English:

Iamque dies epulata novem gens omnis, et aris
factus honos: placidi straverunt aequora venti,
creber et adspirans rursus vocat Auster in altum.
Exoritur procurva ingens per litora fletus;
complexi inter se noctemque diemque morantur.—5, 762–766

High School Department

181ST EXAMINATION

VIRGIL'S AENEID

Friday, March 25, 1904 — 1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a A FIERY OMEN IS SENT FROM HEAVEN

Talia *vociferans gemitu tectum* omne *replebat*,
cum subitum *dictu*que *oritur mirabile* monstrum.
Namque manus inter *maestorum*que *ora* parentum
ecce levis summo de vertice visus Iuli
fundere lumen apex, tactuque innoxia mollis
lambere flamma comas et circum tempora pasci.
Nos pavidi *trepidare metu* crinemque flagrantem
excutere et sanctos restinguere *fontibus* ignes. — 2, 679–686

b MERCURY IS DESPATCHED TO AENEAS

Vade age, nate, voca Zephyros et labere pennis,
Dardaniumque ducem, Tyria *Karthagine* qui nunc
exspectat *fatisque* datas non respicit *urbes*,
adloquere et celeris defer mea dicta per auras.
Non illum *genetrix* nobis pulcherrima *talem*
promisit Graiumque *ideo bis* vindicat *armis;*
sed *fore* qui gravidam imperiis belloque frementem
Italiam *regeret*, *genus* alto a sanguine *Teucri*
proderet ac totum sub leges mitteret orbem. — 4, 223–231

c THE EARLY DEATH OF MARCELLUS IS FORETOLD

Tum pater *Anchises* lacrimis ingressus obortis:
"O gnate, *ingentem* luctum ne quaere tuorum.
Ostendent *terris* hunc tantum fata neque ultra
esse sinent. Nimium vobis Romana propago
visa *potens*, Superi, propria haec si dona *fuissent*.
Quantos ille virum magnam *Mavortis* ad *urbem*
campus aget gemitus! vel quae, Tiberine, videbis
funera, cum tumulum praeterlabere recentem!" — 6, 867–874

6 Translate into Latin [Do not use rare or poetic constructions]: (*a*) Rome would have been too powerful, if this man

had been permitted to live longer, (*b*) Venus rescued her son from the Greeks after he had been captured by them, (*c*) Do you know whether or not the flames can be extinguished?

7 Translate into Latin [Do not use rare or poetic constructions]: Jupiter said: "My son, speak these words to Aeneas: 'Aeneas, leader of the Trojans, do not linger at Carthage. For the fates have promised that you shall found in Italy a race which shall rule the world.'"

8 Give the reason for the case of *dictu* (*a*), *fatis*, *talem* (*b*), *terris* (*c*); for the mode of *oritur*, *trepidare* (*a*), *fore*, *proderet* (*b*), *esse*, *fuissent* (*c*).

9 Write the second person singular of *each* of the tenses of the subjunctive and imperative, active and passive, of *regeret* (*b*). Write the principal parts of *oritur*, *fundere* (*a*).

10 Give the reason for the case of *metu*, *fontibus* (*a*), *Karthagine*, *armis* (*b*). Decline *Karthagine* (*b*), *Anchises* (*c*). Decline the following in the singular: *gemitu*, *ora* (*a*), *genetrix* (*b*), *potens* (*c*) in the masculine.

11 Explain the reference in *fatisque . . . urbes*, *bis . . . armis*, *genus . . . Teucri* (*b*), *Mavortis . . . urbem* (*c*). Compare *mirabile* (*a*), *ingentem* (*c*).

12 Write an account of Virgil, touching on (*a*) the age in which he lived, (*b*) his education, (*c*) his character, (*d*) his literary style.

13 Write the first *three* lines of (*a*), indicating quantity of syllables, division into feet and principal cesuras. Give the rule for the quantity of the penult of *replebat*, *maestorum*. Define and illustrate hendiadys.

14 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *vociferans*, *tectum* (*a*), *ideo* (*b*). Give, with meaning, the Latin words from which the following are derived: abstinence, contradict, introduce, oppress.

15 Translate into English:

Continuo venti volvunt mare magnaque surgunt
aequora, dispersi iactamur gurgite vasto,
involvere diem nimbi et nox umida caelum
abstulit, ingeminant abruptis nubibus ignes.
Excutimur cursu et caecis erramus in undis.—3, 196–200

University of the State of New York

High School Department

182D EXAMINATION

VIRGIL'S AENEID

Tuesday, June 14, 1904—1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a THE SITE OF THE TEMPLE

Infert se saeptus nebula (mirabile dictu)
per medios miscetque viris, neque *cernitur ulli.*
Lucus in urbe fuit media, laetissimus umbra,
quo primum iactati *undis* et turbine Poeni
effodere loco signum, quod *regia Iuno*
monstrarat, *caput acris equi:* sic nam fore *bello*
egregiam et *facilem* victu per saecula gentem.
Hic templum *Iunoni ingens Sidonia Dido*
condebat.—1, 439–447

b THE STORMY VOYAGE

Ipse diem noctemque negat discernere caelo
nec *meminisse viae* media Palinurus in unda.
Tris adeo *incertos* caeca *caligine soles*
erramus pelago, totidem sine sidere noctes.
Quarto terra die primum se *attollere* tandem
visa, aperire procul montis ac *volvere fumum.*
Vela cadunt, remis insurgimus, haud mora nautae
adnixi torquent spumas et caerula verrunt.—3, 201–208

c THE SPEECH OF AENEAS

Iamque dies, nisi *fallor*, adest, quem semper acerbum,
semper honoratum (sic di voluistis) habebo.
Hunc ego Gaetulis agerem si Syrtibus exsul
Argolicove *mari* deprensus et urbe *Mycenae,*
annua vota tamen sollemnisque ordine pompas
exsequerer struerenque suis *altaria* donis.
Nunc ultro ad cineres *ipsius* et *ossa parentis,*
haud equidem sine mente reor, sine numine divom,
adsumus, et *portus delati* intramus *amicos.*—5, 49–57

6 **Translate** into Latin [Do not use rare or poetic constrtions]: (*a*) It is uncertain whether or not Didō will found

temple near the sea, (*b*) Let us remain with the Carthaginians till Aeneas arrives, (*c*) I believe that he does not remember what I did for him.

7 Translate into Latin [Do not use rare or poetic constructions]: (*a*) Aeneas, the gods desire you to wander many years as an exile far from your native land, (*b*) If we had been able to see the stars by night we should have entered the harbor without delay, (*c*) He came to show the way through the city.

8 Give the reason for the case of ***bello***, ***Iunoni*** (*a*), ***viae***, ***soles*** (*b*), ***mari***, ***Mycenae*** (*c*); for the mode of ***meminisse***, ***attollere*** (*b*), ***exsequerer*** (*c*). State the force of the imperfect in ***condebat*** (*a*).

9 Decline the following in singular and plural: ***acris equi*** (*a*), ***ipse*** (*b*) in the neuter, ***ossa***, ***portus*** (*c*).

10 Write the first person plural of ***each*** of the tenses of the indicative and subjunctive of ***exsequerer*** (*c*). Write all the participles, including gerundive, of ***exsequerer*** (*c*). Compare ***facilem***, ***ingens*** (*a*), ***incertos*** (*b*).

11 Give the reason for the case of ***undis***, ***egregiam*** (*a*), ***caligine*** (*b*), ***parentis*** (*c*). Write the principal parts of ***cernitur*** (*a*), ***volvere*** (*b*), ***fallor*** (*c*).

12 Write the last ***three*** lines of (*c*), indicating quantity of syllables, division into feet and principal cesuras. Give the rule for the quantity of the penult of ***ipsius;*** of the ultima of ***portus***. Define asyndeton and illustrate from questions 1–5.

13 Explain the reference in ***regia Iuno***, ***Sidonia Dido*** (*a*), ***portus amicos*** (*c*). Mention and define a figure of rhetoric found in questions 1–5. Explain the force of ***ipse*** (*b*). Write the corresponding prose construction for ***ulli*** (*a*).

14 Give the derivation or composition of ***each*** of the following and show how the meaning of each is derived: ***egregiam*** (*a*), ***altaria***, ***delati*** (*c*). Write an English word derived from the stem of ***caput*** (*a*), ***soles***, ***fumum*** (*b*), ***mari*** (*c*).

15 Translate into English:

Tempus erat, quo prima quies mortalibus aegris
incipit et dono divom gratissima serpit.
In somnis ecce ante oculos maestissimus Hector
visus adesse mihi largosque effundere fletus,
raptatus bigis ut quondam, aterque cruento
pulvere perque pedes traiectus lora tumentis.—2, 268–273

High School Department

180TH EXAMINATION

VIRGIL'S ECLOGUES

Monday, January 25, 1904—9.15 a. m. to 12.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a EACH ONE SEEKS HIS OWN PLEASURE

Quem fugis, ah *demens? Habitarunt* di quoque *silvas*
*Dardanius*que *Paris. Pallas*, quas condidit arces,
ipsa *colat; nobis* placeant ante omnia silvae.
Torva leaena lupum sequitur, lupus ipse capellam,
florentem cytisum sequitur lasciva *capella*,
te Corydon, o *Alexi: trahit* sua *quemque* voluptas.
Adspice, aratra iugo *referunt* suspensa iuvenci,
et sol *crescentes* decedens duplicat *umbras:*
me tamen urit amor: quis enim modus *adsit amori?*—2, 60–68

b ALL LAMENT THE DEATH OF DAPHNIS

Me. Sed tu desine *plura*, puer: *successimus* antro.
Mo. Exstinctum Nymphae *crudeli* funere Daphnim
flebant—vos coryli *testes* et *flumina* Nymphis—
cum complexa sui corpus miserabile *nati*
atque deos atque astra vocat crudelia mater.
Non ulli pastos *illis* egere *diebus*
frigida, Daphni, *boves* ad flumina; nulla neque *amnem*
libavit *quadrupes* nec *graminis* attigit herbam.—5, 19–26

c GALLUS LAMENTS THE ABSENCE OF LYCORIS

Hic gelidi fontes, hic mollia prata, Lycori,
hic *nemus;* hic ipso tecum *consumerer aevo.*
Nunc insanus amor *duri* me *Martis* in armis
tela inter *media* atque adversos detinet hostes.
Tu procul a patria—nec sit mihi *credere* tantum—
Alpinas, ah dura, *nives* et frigora Rheni
me sine sola vides. Ah, te ne frigora laedant!
Ah, *tibi* ne teneras glacies *secet aspera* plantas!—10, 42–49

6 Translate into Latin [Do not use rare or poetic constructions]: (*a*) Let us go into the shade where there are fountains of cool water, (*b*) Would that we had believed this wretched man, (*c*) Corydon said that each one was drawn on by his own pleasures.

7 Translate into Latin [Do not use rare or poetic constructions]: (*a*) It is so cold in some places that men are not able to dwell there, (*b*) If you should flee from your fatherland it would not be pleasing to the gods, (*c*) Do not detain me.

8 Give the reason for the case of *nobis* (*a*), *flumina* (*b*, line 3), *nati*, *diebus* (*b*), *Martis*, *tibi* (*c*); for the mode of *colat*, *adsit* (*a*), *consumerer*, *credere* (*c*).

9 Decline *Pallas*, *Alexi* (*a*). Decline throughout *quemque* (*a*) in the neuter, *illis* (*b*) in the feminine, *boves* (*b*), *nives* (*c*).

10 Distinguish in meaning *silvas* (*a*) and *nemus* (*c*), *flumina* (*b*, line 3) and *amnem* (*b*). Explain the reference in *Dardanius Paris*, *Pallas* (*a*). Mention and define a rhetorical figure found in (*c*).

11 Give the reason for the case of *graminis* (*b*), *aevo* (*c*). Mention the class of derivatives to which *each* of the following belongs and give the derivation of each: *capella*, *crescentes* (*a*). Compare *plura*, *crudeli* (*b*), *duri*, *aspera* (*c*).

12 Write the active and passive infinitives, the active and passive participles, including gerundive, and the supines of *referunt* (*a*). Write the principal parts of *trahit* (*a*), *secet* (*c*).

13 Write the last *three* lines of (*a*), indicating quantity of syllables, division into feet and principal cesuras. Give the rule for the quantity of the ultima of *umbras*, of the penult of *amori*. Define hiatus and illustrate from (*a*).

14 Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *habitarunt* (*a*), *successimus*, *quadrupes* (*b*). Mention an English word derived from the stem of *demens* (*a*), *testes*, *boves* (*b*), *media* (*c*).

15 Translate into English:

Pastorum Musam Damonis et Alphesiboei,
immemor herbarum quos est mirata iuvenca
certantes, quorum stupefactae carmine lynces,
et mutata suos requierunt flumina cursus,
Damonis Musam dicemus et Alphesiboei.—8, 1–5

University of the State of New York

High School Department

182D EXAMINATION

VIRGIL'S ECLOGUES

Monday, June 13, 1904—9.15 a. m. to 12.15 p. m., only

Answer the first six questions and four of the others but* no more.** ***If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1-5 **Translate into English:**

a PALAEMON IS CHOSEN UMPIRE

D. Quin age, si quid habes, in me mora non erit ulla,
nec quemquam fugio: tantum, vicine *Palaemon*,
sensibus haec *imis*, res est non parva, *reponas*.
P. Dicite, quandoquidem in molli *consedimus* herba.
Et nunc *omnis ager*, nunc omnis parturit arbos,
nunc frondent silvae, nunc *formosissimus* annus.
Incipe, Damoeta; tu deinde sequere, Menalca.
Alternis dicetis: amant alterna *Camenae*.—3, 52-59

b SILENUS IS COMPELLED TO SING

Addit se *sociam timidis*que supervenit *Aegle*,
Aegle, *Naiadum* pulcherrima, iamque *videnti*
sanguineis frontem *moris* et tempora pingit.
Ille dolum ridens, "Quo *vincula* nectitis?" inquit.
"Solvite me, pueri; *satis* est potuisse *videri*.
Carmina, quae *vultis*, cognoscite; carmina *vobis*,
huic aliud mercedis erit." Simul incipit ipse.
Tum vero in numerum *Faunos*que ferasque *videres*
ludere, tum rigidas motare cacumina quercus.—6, 20-28

c GALLUS WILL DEVOTE HIMSELF TO POETRY AND HUNTING

Ibo et *Chalcidico* quae sunt *mihi* condita *versu*
carmina *pastoris Siculi* modulabor *avena*.
Certum est in *silvis*, inter spelaea ferarum
malle *pati* tenerisque meos incidere amores
arboribus: crescent illae, crescetis, *amores*.
Interea mixtis lustrabo Maenala *nymphis*,
aut *acres* venabor apros. Non *me* ulla vetabunt
frigora Parthenios canibus circumdare saltus.—10, 50-57

6 Translate into Latin [Do not use rare or poetic constructions]: (*a*) He said that he would sing for them if they would

6 Translate into Latin [Do not use rare or poetic constructions]: (*a*) We must protect the state with a very large army, (*b*) Miltiades was one of the ten generals that were chosen to lead the Athenians against the Persians, (*c*) Epaminondas bids his friends assist those who are in need of aid.

7 Translate into Latin [Do not use rare or poetic constructions]: (*a*) Darius is about to capture the city of Athens, (*b*) Atticus was so careful in performing what he undertook that all had confidence in him, (*c*) Did not the Greeks dare to fight with the enemy outside the walls?

8 Give the reason for the case of *Lacedaemonem*, *exercitui* (*a*), *fide*, *civium* (*b*), *eius* (*c*); for the mode of *defenderent*, *fierent* (*a*), *esset captus* (*b*), *pati*, *adnuisset* (*c*).

9 Write the principal parts of *decernerent*, *auderi* (*a*), *imperabat* (*b*), *pati*, *praestare* (*c*).

10 Decline throughout *domi* (*a*), *id* (*a*) in the masculine, *quisque* (*b*) in the feminine, *negotii* (*c*). Compare *saepe* (*b*), *leves* (*c*).

11 Give the reason for the case of *domi*, *hostibus*, *re* (*a*), *facultatibus* (*b*, lines 2–3), *ei* (*b*), *negotii* (*c*); for the mode of *praeessent* (*a*), *fuisse* (*b*), *esset*, *polliceri* (*c*).

12 Draw an outline map of Greece, indicating, with name, the location of Athens, Sparta, Thebes, Delphi, Marathon.

13 Select from questions 1–5 an ablative of agent, an ablative of accompaniment, a gerundive, a supine. Write the second person singular of *each* of the tenses of the subjunctive and imperative, active and passive, of *dicebat* (*c*).

14 Give the composition of *each* of the following and show how the meaning of each is derived: *desperari* (*a*), *poterat*, *suscepti* (*c*). Mention an English word derived from the stem of *animum*, *copiis* (*a*), *fide* (*b*), *agere* (*c*).

15 Translate into English:

At Alcibiades, victis Atheniensibus non satis tuta eadem loca sibi arbitrans, penitus in Thraeciam se supra Propontidem abdidit, sperans ibi facillime suam fortunam occuli posse. Falso. Nam Thraeces, postquam eum cum magna pecunia venisse senserunt, insidias fecerunt eaque quae apportarat abstulerunt, ipsum capere non potuerunt.—*Alcibiades*, 9

University of the State of New York

High School Department

182D EXAMINATION

LATIN—Second Year

Tuesday, June 14, 1904—1.15 to 4.15 p. m., only

Answer the first six questions and four of the others but **no more.** *If more than four of the others are answered only the first four answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a THE TERMS OF PEACE

Pausanias venit Atticis *auxilio*, rex Lacedaemoniorum. Is inter Thrasybulum et eos, qui urbem *tenebant*, fecit pacem his *condicionibus:* ne qui praeter triginta tyrannos et decem, qui postea praetores creati *superioris* more crudelitatis erant usi, *afficerentur exsilio* neve bona publicarentur: rei publicae procuratio *populo* redderetur. *Praeclarum* hoc quoque *Thrasybuli*, quod reconciliata *pace*, cum plurimum in civitate posset, legem tulit, ne quis ante actarum *rerum* accusaretur neve multaretur, eamque illi oblivionis appellarunt.—*Thrasybulus*, 3

b THE PLANS OF THE THEBAN EXILES

Hi omnes fere *Athenas* se contulerant, non quo *sequerentur* otium, sed ut, quem ex proximo locum fors obtulisset, eo patriam *recuperare* niterentur. Itaque cum *tempus* esset visum *rei gerendae*, communiter cum iis, qui *Thebis* idem *sentiebant*, diem delegerunt ad *inimicos* opprimendos civitatemque liberandam eum, quo maximi *magistratus* simul consuerant epulari. Magnae saepe res non ita magnis copiis sunt gestae.
—*Pelopidas*, 2

c THE SUICIDE OF HANNIBAL

Huc cum legati Romanorum venissent ac multitudine domum eius circumdedissent, puer ab ianua prospiciens Hannibali dixit plures praeter consuetudinem armatos *apparere*. Qui imperavit ei, ut omnes fores *aedificii circumiret* ac propere sibi nuntiaret, num *eodem modo* undique *obsideretur*. *Puer* cum celeriter, quid vidisset, renuntiasset *omnes*que *exitus* occupatos *ostendisset*, *sensit id* non fortuito factum, sed se peti neque *sibi* diutius vitam esse *retinendam*. Quam ne *alieno* arbitrio dimitteret, memor pristinarum *virtutum* venenum, quod semper secum habere *consuerat*, *sumpsit*.—*Hannibal*, 12

6 Translate into Latin [Do not use rare or poetic constructions]: (*a*) He said that he would not confiscate the property of the citizens, (*b*) The magistrates were accused of so great cruelty that they were fined and sent into exile, (*c*) The ten men who are chosen will carry on the affairs of the state.

7 Translate into Latin [Do not use rare or poetic constructions]: (*a*) Let us use all our resources that Athens may be freed from the tyrants who now oppress the city, (*b*) Strive to hold the town against those who are besieging it, (*c*) Why did the Romans seek the life of Hannibal?

8 Give the reason for the case of *exsilio*, *populo*, *pace* (*a*), *Athenas* (*b*), *modo*, *exitus*, *virtutum* (*c*); for the mode of *sequerentur* (*b*), *apparere*, *ostendisset* (*c*).

9 Write the principal parts of *sequerentur*, *sentiebant* (*b*), *consuerat*, *sumpsit* (*c*). Compare *superioris*, *praeclarum* (*a*).

10 Decline the following in the singular: *pace* (*a*), *rei gerendae*, *magistratus* (*b*), *eodem* (*c*) in the feminine, *puer* (*c*); the following in the plural: *tempus* (*b*), *aedificii*, *omnes exitus* (*c*).

11 Give the reason for the case of *auxilio*, *Thrasybuli*, *rerum* (*a*), *Thebis* (*b*), *sibi* (*c*, line 7); for the mode of *afficerentur* (*a*), *recuperare* (*b*), *circumiret*, *obsideretur* (*c*). Explain the force of the tense of *tenebant* (*a*).

12 Give an account of the writings of Nepos, touching on (*a*) literary style, (*b*) historical value. Write a sketch of the rule of the Thirty.

13 Write in direct discourse *id . . . retinendam* (*c*). Write the second person singular of *each* of the tenses of the subjunctive, active and passive, of *sensit* (*c*).

14 Explain the derivation of *each* of the following, giving the meaning of stem and prefix or suffix: *praeclarum* (*a*), *alieno* (*c*). Give the derivation or composition of *each* of the following and show how the meaning of each is derived: *condicionibus* (*a*), *inimicos* (*b*), *aedificii* (*c*).

15 Translate into English (*Themistocles*, 10):

De cuius morte multimodis apud plerosque scriptum est, sed nos eundem potissimum Thucydidem auctorem probamus, qui illum ait Magnesiae morbo mortuum neque negat fuisse famam, venenum sua sponte sumpsisse, cum se, quae regi de Graecia opprimenda pollicitus esset, praestare posse desperaret.

University of the State of New York

High School Department

180TH EXAMINATION

LATIN—Third Year

Tuesday, January 26, 1904—1.15 to 4.15 p. m., only

Answer the first seven questions and three of the others but* no more. *If more than three of the others are answered only the first three answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1–5 Translate into English:

a CAESAR NEGOTIATES FOR THE SURRENDER OF NOVIODUNUM

Vercingetorix, ubi de Caesaris adventu cognovit, *oppugnatione destitit* atque obviam *Caesari* proficiscitur. Ille oppidum Biturigum positum in via Noviodunum *oppugnare* instituerat. Quo ex oppido cum legati ad eum *venissent* oratum, ut sibi *ignosceret* suaeque vitae consuleret, ut celeritate reliquas res conficeret, qua pleraque erat consecutus, *arma* conferri, equos produci, obsides dari iubet.—Caesar, *De Bello Gallico*, 7, 12

b THE KILLING OF A HIGHWAYMAN IS JUSTIFIABLE

Quapropter hoc maneat in causa, iudices; non enim dubito, quin ***probaturus sim vobis*** defensionem meam, si id memineritis, quod oblivisci non potestis, insidiatorem iure interfici ***posse.*** Sequitur illud, quod a Milonis inimicis saepissime dicitur, caedem, in qua P. Clodius occisus est, senatum iudicasse contra rem publicam esse factam. Illam vero senatus non sententiis suis solum, sed etiam studiis comprobavit. Quotiens enim est illa causa a nobis acta in senatu, quibus assensionibus universi ordinis!—Cicero, *Pro Milone*, 4–5

insidiator=highwayman, *assensio*=expression of assent

c OVID PREDICTS THE IMMORTALITY OF HIS WORK

Iamque opus exegi, quod nec Iovis ira nec ignis
nec poterit ferrum nec edax abolere vetustas.
Cum volet, illa dies, quae nil nisi corporis huius
ius habet, incerti spatium *mihi finiat* aevi:
parte tamen *meliore* mei super alta perennis
astra ferar, nomenque erit indelebile nostrum.
Quaque ***patet*** domitis Romana potentia terris,
ore legar populi, perque omnia saecula *fama*,
si quid habent *veri vatum* praesagia, vivam.
—Ovid, *Metamorphoses*, 15, 871–879

exigo=complete, *edax*=devouring, *perennis*=immortal, ***praesagium***=foreboding

6 **Translate** into Latin [Do not use rare or poetic constructions]: (*a*) If the Gauls knew that Caesar would pardon them, they would give hostages and live at peace with the Romans,

(*b*) It is true that nothing has been able to destroy the works of Ovid, (*c*) Do not forget that this was approved by the senate.

7 Translate into Latin [Do not use rare or poetic constructions]: (*a*) Let us send legates to Caesar to implore him not to attack our city, (*b*) Would that the senate had ordered all those to be put to death who were plotting against us, for they were enemies to the state.

8 Give the reason for the case of *oppugnatione*, *Caesari*, *arma* (*a*), *vobis* (*b*), *mihi*, *fama*, *veri*, *vatum* (*c*). Decline *meliore* (*c*) in the singular, all genders.

9 Give the reason for the mode of *oppugnare*, *venissent*, *ignosceret* (*a*), *probaturus sim*, *posse* (*b*), *finiat* (*c*). Give the principal parts of *destitit* (*a*), *patet* (*c*).

10 Translate into English:

Natus erat Agricola Gaio Caesare tertium consule Idibus Iuniis, excessit quarto et quinquagesimo anno, decimo Kalendas Septembris. Quod si habitum quoque eius posteri noscere velint, decentior quam sublimior fuit. Bonum virum facile crederes, magnum libenter.—Tacitus, *Agricola*, 44

habitus=appearance, *decens*=comely

11 Write an account of *two* of the following: the career of Caesar before his contest with Pompey, the life and writings of Virgil, Cicero as an orator.

12 Translate into English:

Speculatus litora Tarchon,
qua vada non sperat nec fracta remurmurat unda,
sed mare inoffensum crescenti adlabitur aestu,
advertit subito proram sociosque precatur:
"Nunc, o lecta manus, validis incumbite remis;
tollite, ferte rates."—Virgil, *Aeneid*, 10, 290–295

speculor=examine, *inoffensus*=undisturbed, *adlabor*=glide

13–14 Translate into English:

Nihil igitur adferunt, qui in re gerenda versari senectutem negant, similesque sunt, ut si qui gubernatorem in navigando nihil agere dicant, cum alii malos scandant, alii per foros cursent, ille autem clavum tenens quietus sedeat in puppi, non faciat ea, quae iuvenes, at vero multo maiora et meliora faciat. Non viribus aut velocitate aut celeritate corporum res magnae geruntur, sed consilio, auctoritate, sententia; quibus non modo non orbari, sed etiam augeri senectus solet. Nisi forte ego vobis, qui et miles et tribunus et legatus et consul versatus sum in vario genere bellorum, cessare nunc videor, cum bella non gero.—Cicero, *De Senectute*, 6

scando=climb, *forus*=gangway, *clavus*=helm, *orbo*=deprive

15 Write and translate Latin sentences illustrating the following: genitive of quality (characteristic), ablative of price, dative of agent clause of characteristic, deliberative subjunctive.

University of the State of New York

High School Department

182D EXAMINATION

LATIN—Third Year

Tuesday, June 14, 1904—1.15 to 4.15 p. m., only

Answer the first seven questions and three of the others but **no more.** *If more than three of the others are answered only the first three answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1–5 Translate into English:

a PREPARATIONS FOR THE BATTLE

Igitur quarto denique die haud longe ab oppido *Cirta* undique simul speculatores sese ostendunt, qua *re hostis* adesse intellegitur. Sed quia diversi redeuntes alius ab alia parte atque omnes idem significabant, consul incertus quonam modo aciem *instrueret*, nullo *ordine* conmutato advorsum omnia paratus ibidem opperitur. Ita Iugurtham spes frustrata, qui copias in quattuor partis distribuerat, *ratus* ex omnibus aeque aliquos ab tergo hostibus venturos. Interim Sulla, quem primum hostes attigerant, cohortatus suos turmatim et quam maxume confertis equis ipse aliique Mauros invadunt.

—Sallust, *Bellum Iugurthinum*, 101

speculator=scout, *opperior*=wait, *turmatim*=by squadrons

b CICERO'S GRIEF FOR HIS FAMILY

O *me* perditum, o afflictum! Quid nunc rogem te, ut *venias*, mulierem aegram et *corpore* et animo confectam? Non rogem? Sine te igitur *sim*? Opinor, sic agam: Si est spes nostri *reditus*, eam confirmes et rem adiuves; sin, ut ego metuo, transactum est, quoquo modo potes, ad me fac *venias*. Unum hoc scito: Si te habebo, non mihi videbor plane perisse. Sed quid Tulliola mea fiet? Iam id vos videte; *mihi* deest consilium. Sed certe, quoquo modo se res habebit, illius misellae et *matrimonio* et famae serviendum est.

misellus=unfortunate —Cicero, *Ad Familiares*, 14, 4

c A SIGN FROM HEAVEN

Vix ea fatus erat, *defixi*que ora tenebant
Aeneas Anchisiades et *fidus* Achates;
multaque dura suo tristi cum corde putabant,
ni signum caelo Cytherea *dedisset* aperto.
Namque inproviso vibratus ab aethere fulgor
cum sonitu venit, et ruere omnia visa repente
Tyrrhenusque tubae *mugire* per aethera clangor.
Suspiciunt, iterum atque iterum fragor increpat ingens.

—Virgil, *Aeneid*, 8, 520–527

fulgor=lightning, *mugio*=bray, *increpo*=resound

6 Translate into Latin [Do not use rare or poetic constructions]: (*a*) Sulla drew up his army in line of battle to await the attack of the Mauretanians, (*b*) Though Cicero desired to have his wife with him, yet he did not ask her to come, as she was very sick.

7 Translate into Latin [Do not use rare or poetic constructions]: (*a*) If the consul had not seen the scouts of the enemy he would not have known that Jugurtha with his troops was near at hand, (*b*) Aeneas, do not be sad at heart, for a sign from heaven will be granted you by your mother Venus.

8 Give the reason for the case of ***Cirta***, ***re***, ***hostis***, ***ordine*** (*a*), ***me*** (*b*, line 1), ***corpore***, ***reditus***, ***mihi*** (*b*, line 7), ***matrimonio*** (*b*). Compare ***fidus*** (*c*).

9 Give the reason for the mode of ***instrueret*** (*a*), ***venias*** (*b*, line 1), ***sim***, ***venias*** (*b*, line 5), ***dedisset***, ***mugire*** (*c*). Write the principal parts of ***ratus*** (*a*), ***defixi*** (*c*).

10 Translate into English:

Librum tuum legi et quam diligentissime potui annotavi quae commutanda arbitrarer. Nam et ego verum dicere adsuevi et tu libenter audire. Neque enim ulli patientius reprehenduntur quam qui maxime laudari merentur. Nunc a te librum meum cum annotationibus tuis exspecto. O iucundas, o pulchras vices!—Pliny, *Epistolae*, 7, 20

11 Write a sketch of *two* of the following: (*a*) the wanderings of Aeneas after the fall of Troy, (*b*) the civil war between Caesar and Pompey, (*c*) the life of Cicero.

12 Translate into English:

Cum subit illius tristissima noctis imago,
qua mihi supremum tempus in urbe fuit,
cum repeto noctem, qua tot mihi cara reliqui,
labitur ex oculis nunc quoque gutta meis.
Iam prope lux aderat, qua me discedere Caesar
finibus extremae iusserat Ausoniae.—Ovid, *Tristia*, 1, 3

gutta = tear

13–14 Translate into English:

Omni Gallia devicta Caesar cum a superiore aestate nullum bellandi tempus intermisisset militesque hibernorum quiete reficere a tantis laboribus vellet, complures eodem tempore civitates renovare belli consilia nuntiabantur coniurationesque facere. Cuius rei veri similis causa afferebatur, quod Gallis omnibus cognitum esset, neque ullā multitudine in unum locum coacta resisti posse Romanis, nec, si diversa bellā complures eodem tempore intulissent civitates, satis auxilii aut spatii aut copiarum habiturum exercitum populi Romani ad omnia persequenda.—Hirtius, *De Bello Gallico*, 8, 1

15 Write and translate Latin sentences illustrating the following: ablative of material, genitive with adjectives, optative subjunctive, a clause introduced by *quin*, a supine in *um*.

High School Department

180TH EXAMINATION

LATIN PROSE COMPOSITION

Monday, January 25, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

Translate into Latin [Do not use rare or poetic constructions]:

1 One of the captives informed Caesar that the Rhone river was not more than ten miles distant.

2 If Hannibal had been captured by the Romans at that time, he would certainly have been put to death.

3 You will know in a short time whether or not you have a consul that is willing to obey the laws.

4 Though the Carthaginians were often repulsed in battle, yet Hamilcar himself never yielded to the Romans.

5 Labienus will not join battle with the Helvetians till he sees Caesar's forces near the enemy.

6 The consul said, "Send legates to Asia to ask that the king surrender Hannibal to us."

7 The Gauls, since they were afraid that their soldiers would be defeated by us, closed the gates of their town.

8–9 May the immortal gods defend this state from the attacks of those whom Catiline has left at Rome. For what state is there that can be overthrown, if the gods protect it?

10–11 When Hamilcar was preparing to carry the war into Italy, in the ninth year after he had come into Spain, he was slain while fighting against the Vettones, a nation famous for valor.

12–13 The Belgians descended from the Germans. In ancient times they crossed the Rhine and settled in Gaul, after having driven out the inhabitants of that region. The Belgians are said to have been the only nation that was able to keep off the Teutones.

14–15 Let us unite in regard to this matter so that the lives of all the citizens of the republic may be protected. For desperate men are threatening the temples of the gods, the walls of the city and even our very homes.

descend = *orior*, in ancient times = *antiquitus*, desperate = *desperatus*, threaten = *minor*

High School Department

182D EXAMINATION

LATIN PROSE COMPOSITION

Monday, June 13, 1904—9.15 a. m. to 12.15 p. m., **only**

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

Translate into Latin [Do not use rare or poetic constructions]:

1 Do not forget that the republic has been preserved by the swords of its brave soldiers.

2 If Hannibal had led his army against Rome at that time, he would have taken the city.

3 He said that his scouts had approached so near the town that they could see the soldiers on the walls.

4 Catiline, having been accused of conspiracy by Cicero in the senate, fled from Rome at night.

5 Caesar is about to lead a part of his forces out of camp to give the enemy an opportunity of fighting.

6–7 When Xerxes with a great multitude of soldiers brought war on Greece by land and by sea, the Athenians sent to Delphi and consulted the oracle at that place. The priestess of Apollo responded, "Fortify your city by wooden walls."

8–9 Caesar, since he desired to protect the Gauls from the attacks of the Germans, demanded through legates that Ariovistus should neither lead any Germans across the Rhine nor harm the Gauls who were allies of the Romans.

10–12 Cicero said: "The only man worthy of being chosen to carry on this war is Pompey. Is there any one at Rome who has a greater knowledge of military matters than he? In what part of the world has he not caused the Roman power to be feared? Therefore let us deliberate no longer but give to Pompey the supreme command."

13–15 Caesar, having been informed that the river Axona was not more than fifteen miles distant, hastened thither with his legions by forced marches. After reaching the river he halted on a small hill suitable for a camp. Here Caesar waited three days to see whether the Belgians who were encamped across the river were intending to cross and attack his troops.

accuse=*accuso*, oracle=*oraculum*, priestess=*sacerdos*, wooden =*ligneus*, knowledge=*scientia*

University of the State of New York

High School Department

179TH EXAMINATION

ARITHMETIC

Thursday, October 1, 1903—9.15 a. m. to 12.15 p. m., only

***Answer the first five questions and five of the others but* no more.** *If more than five of the others are answered only the first five answers will be considered. Give all operations (except mental ones) necessary to find results. Reduce each result to its simplest form and mark it Ans. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Simplify $\{2\frac{3}{3}\frac{1}{4}\times8\frac{1}{2}-1\div(6\frac{5}{8}+5\frac{3}{8})\}\div16\frac{4}{9}$

2 Find the simple interest of $341 at $3\frac{1}{2}$% from December 15, 1902 to the present date.

3 A grocer lost 20% by selling 120 gallons of oil for $1.62 less than cost; find the cost a gallon of the oil.

4 A bin 3 meters long, 1 meter 6 decimeters high and 1 meter 4 decimeters wide is $\frac{3}{4}$ full of wheat; how many hectoliters of grain are there in the bin?

5 Find the cost, @ 36¢ a square yard, of plastering the walls and ceiling of a room 16′ 6″ long, 15′ wide and 11′ high.

6 Multiply 9.613 by 25.74 and prove by division the correctness of your work.

7 Find the least common multiple of 850 and 969.

8 A commission merchant received $71.91 which was a commission of 2%, for the purchase of grain @ 85¢ a bushel; find how many bushels of grain he purchased.

9 A pile of wood is 20′ long, 4′ wide and 8′ high; find the cost of the wood at $3.75 a cord.

10 A grocer bought 96 pounds of sugar @ $4\frac{1}{2}$¢ a pound; he sold $\frac{1}{2}$ the sugar @ $5\frac{1}{2}$¢, $\frac{1}{3}$ @ $6\frac{1}{4}$¢ and the remainder at cost. Find the grocer's whole gain.

11 A man receives an income of $243 from an investment in $4\frac{1}{2}$% stock at $117\frac{1}{8}$, brokerage $\frac{1}{8}$%; find the amount invested.

12 Find the proceeds of a 90 day note for $142, without interest, dated August 27, 1903 and discounted today at 6%.

13 A premium of $16.74 was paid for insuring a house at the rate of $\frac{3}{4}$%; find the face of the policy.

14 How long must a rope be to reach from the top of a house 45′ high to a point in the street 24′ from the house?

15 Define fraction, factor, multiple, interest, negotiable note.

High School Department

179TH EXAMINATION

ARITHMETIC

Friday, October 2, 1903—9.15 a. m. to 12.15 p. m., only

Answer the first five questions and five of the others but **no more.** *If more than five of the others are answered only the first five answers will be considered. Give all operations (except mental ones) necessary to find results. Reduce each result to its simplest form and mark it Ans. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Simplify $\dfrac{\frac{3}{4}\times 2\frac{2}{7}\div(\frac{4}{9}+3\frac{1}{3})+\frac{9\frac{2}{7}}{17}}{(\frac{2}{3}-\frac{1}{8})(\frac{1}{3}+2\frac{1}{4})}$

2 A bin 3 meters 5 decimeters long, 1 meter 2 decimeters wide and 1 meter 4 decimeters deep is full of corn which is sold @ 9 francs a hectoliter; find in francs the selling price of the corn.

3 Find the amount of $402.50 at 4% simple interest from September 27, 1901 to the present date.

4 A boy bought oranges @ 18¢ a dozen and sold them @ 5¢ each; find his per cent of gain.

5 Find the number of gallons of water that will be contained in a cistern 7'×6'×5'. [231 cubic inches=1 gallon.]

6 Find the cost, @ 30¢ a cubic yard, of digging a trench 10 rods long, 6 feet deep, 4 feet wide at the top and 3 feet wide at the bottom.

7 A commission merchant sold wheat for $1450 and invested the proceeds in flour; the commission on each transaction was 2%. Find the amount invested in flour.

8 The net amount of a bill of goods after discounts of 15% and 20% is $516.80; find the list price.

9 Find the cost, @ $75 per M, of oak flooring for a room 16'×18', allowing $\frac{1}{8}$ for waste and matching.

10 If A can do a piece of work in 6 days and B in 8 days, how many days will it take them to do it when they work together?

11 Find the area of the largest circle that can be cut from a square containing 272.25 square inches.

12 A train runs at the rate of 5 miles in 6¼ minutes; find how long it will take the train to run 42 miles.

13 A man bought 40 shares of N. Y. C. R. R. stock @ 116¼ and sold them at 121⅜, brokerage in each case ⅛%; how much was his net gain?

14 Find the proceeds of a note for $250, without interest, discounted at a bank for 3 months at 6%.

15 Add $\frac{1}{3}\frac{2}{9}$ [illegible] and $\frac{1}{3}\frac{1}{2}\frac{7}{3}$

University of the State of New York

High School Department

180TH EXAMINATION

ARITHMETIC

Thursday, January 28, 1904—9.15 a. m. to 12.15 p. m., only

Answer the first five questions and five of the others but **no more.** *If more than five of the others are answered only the first five answers will be considered. Give all operations (except mental ones) necessary to find results. Reduce each result to its simplest form and mark it Ans. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Write the following in one connected expression, using figures and signs of operation: the sum of three hundred seventy-five thousandths and six hundred twenty-five ten-thousandths multiplied by the remainder of twelve and five tenths minus twelve and forty-six hundredths; this product is divided by thirty-five. Perform the operations indicated.

2 Reduce $\frac{8649}{9424}$ to its lowest terms.

3 Find the amount of $828 at $4\frac{1}{2}$% simple interest from August 31, 1901 to the present date.

4 A vat 1.5 meters long, 9 decimeters wide and 8 decimeters deep is full of water; find in kilograms the weight of the water.

5 An agent sold 1600 bushels of grain @ 90¢ a bushel and sent his employer $1418.40 as the proceeds of the sale; find the rate of the agent's commission.

6 Find the number of cubic feet of ice on a rectangular pond 17 rods long and 6 rods wide, the ice being $1\frac{1}{2}$ feet thick.

7 How many sacks will hold 35 bushels 2 pecks 7 quarts of grain, if one sack holds 1 bushel 3 pecks 7 quarts 1 pint?

8 Discounts of $12\frac{1}{2}$% and 4% are given on a bill of $545; find the net amount of the bill. What single rate of discount is equivalent to the two successive discounts?

9 A man holding a 60 day note for $376, without interest, due March 21, 1904, has it discounted today at 6%; find the proceeds of the note.

10 Find the loss on 175 shares of stock bought and sold at par, brokerage in each case being $\frac{1}{8}$%.

11 A train traveling 24 miles an hour leaves a station at 1 p. m.; another train traveling 36 miles an hour leaves the same station at 2.45 p. m. At what time will the latter train overtake the former?

12 Find the number of acres in a circular park whose diameter is 280 rods.

13 How high is a flagstaff whose shadow is 81 feet long when a flagstaff 30 feet high casts a shadow 36 feet long? Write the proportion.

14 The face of a policy of insurance on a house was $5692; the premium paid was $42.69. Find the rate of insurance.

15 Define multiple, board foot, specific duty, ratio, root.

High School Department

181ST EXAMINATION

ARITHMETIC

Thursday, March 24, 1904—9.15 a. m. to 12.15 p. m., **only**

Answer the first five questions and five of the others but **no more.** *If more than five of the others are answered only the first five answers will be considered. Give all operations (except mental ones) necessary to find results. Reduce each result to its simplest form and mark it Ans. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Simplify $1+.0875\div.058\frac{1}{3}-2.25\times1.5\times\frac{2.015}{4.03}$ and reduce the result to an equivalent common fraction.

2 How many liters will a tank hold that is 1¼ meters long, ¾ meter wide and ⅓ meter deep?

3 Find the number of shingles necessary to cover the pitched roof of a house if the length of the roof is 48′ and the width of each side is 24′, allowing 1000 shingles to 100 square feet.

4 Find the exact interest of $764.50 for 90 days at 5%.

5 A newsboy bought papers for 1½¢ each and sold them for 2¢ each; find his rate of gain and his total gain in selling 56 papers.

6 By defective scales customers of a certain grocer received 15¾ oz. for a lb.; @ 6¢ a lb. find the actual value of the sugar bought by customers who paid for 2 cwt. 28 lbs. 12 oz.

7 A man bought a bicycle, paying $56.16 for it; his commercial discounts from the list price were 25 and 20 and his discount for cash was 2½%. Find the list price of the bicycle.

8 A bin 8′×25′ holds 1440 bushels; find the hight of the bin. [1 bushel=2150.42 cubic inches.]

9 A man owns three lots fronting a street, which are respectively 108 rods, 75 rods and 132 rods; he wishes to divide these lots into an exact number of building lots of the same width. Find the greatest width that these building lots can have and the number of lots formed.

10 Find one side of a square whose area is 10.5625 square feet.

11 The proceeds of a 90 day note discounted at a bank at 6% 17 days after date, are $274.17; find the face of the note.

12 A man buys 6% stock at 140; to what rate of interest is this equivalent?

13 An agent charged 2% commission and $56.40 expenses for selling grain and sent his principal $1477.30; find the sum for which the grain was sold.

14 A tax of 7½ mills on a dollar was laid on the property of a school-district to pay for a school-house costing $2793; find the assessed valuation of the property.

15 Define decimal, multiplication, common multiple, power, par value.

High School Department

182D EXAMINATION

ARITHMETIC

Thursday, June 16, 1904—9.15 a. m. to 12.15 p. m., only

Answer the first five questions and five of the others but **no more.** *If more than five of the others are answered only the first five answers will be considered. Give all operations (except mental ones) necessary to find results. Reduce each result to its simplest form and mark it Ans. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 In the Roman notation show the effect of (*a*) repeating a letter, (*b*) placing a letter before another of greater value, (*c*) placing a letter after another of greater value, (*d*) placing a bar over a letter. Write 11,949 in the Roman notation.

2 Find the cost, @ $2.80 per M, of laths for the walls and ceiling of a room 20′×18′ and 9′ high; 1000 laths cover 70 square yards.

3 A single track railway connects two places $266\frac{2}{5}$ kilometers apart; how many rails $9\frac{1}{4}$ meters long will it require?

4 How much interest will $732 earn in 3 years, 7 months and 17 days at $3\frac{1}{2}$% simple interest?

5 Silk is sold at a gain of $33\frac{1}{3}$% which is a gain of 30¢ on a yard; find the cost and the selling price a yard of the silk.

6 Find the cost @ $16.50 per M, of $1\frac{1}{2}$″ lumber for a board walk 5′ wide inclosing a rectangular grass plot which is 60′×40′.

7 Subtract $\frac{3}{4}\frac{2}{3}$ of an acre from $\frac{11}{12}$ of an acre, expressing the result in integers of lower denominations.

8 Make a receipted bill of the following items sold by you to S. Roberts June 13, 1904: 10 lbs sugar @ $6\frac{3}{4}$¢; 25 lbs meal @ 2¢; 5 lbs coffee @ 38¢; 2 lbs tea @ 60¢; 5 bars soap @ 6¢.

9 A merchant sends his agent $3138.66 which includes the agent's commission of 6% and the amount to be invested; how many pounds of cotton can be bought @ 9¢ a pound?

10 A pail 12″ in diameter and 15″ deep is full of water; find the weight of the water. [1 cubic foot of water weighs $62\frac{1}{2}$ pounds.]

11 The proceeds of a sale of stock at $127\frac{1}{2}$, brokerage $\frac{1}{8}$%, are $12,228; find the number of shares sold.

12 Simplify $\dfrac{2\frac{1}{3}-\frac{5}{9}\times(12\frac{3}{5}\div11\frac{2}{3})}{4\frac{7}{9}-8\frac{2}{3}\times\frac{1}{2}+1\frac{1}{9}}$

13 If 15 yards of cloth 27 inches wide are required for a dress, how many yards of cloth 30 inches wide will be required? Solve by proportion.

14 Find the proceeds and the date of maturity of a 90 day note for $540.50, dated May 26, 1904, and discounted today at a bank at 6%.

15 Find the least common multiple of 544, 1071 and 1275.

High School Department

180TH EXAMINATION

ADVANCED ARITHMETIC

Monday, January 25, 1904—9.15 a. m. to 12. 15 p. m., only

Answer eight questions but **no more.** *If more than eight are answered only the first eight answers will be considered. Give all operations (except mental ones) necessary to find results Reduce each result to its simplest form and mark it Ans. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 Explain the relation between longitude and time. Distinguish between standard time and local time. What is the difference in time between eastern standard time and Pacific standard time?

2 Show that a^2-b^2 is divisible by 4, when a and b are positive integers and both are odd or both even.

3 A sum of money put at simple interest for 3 years at 4%, amounts to $672; in how many years will the same sum at the same rate amount to $1206? Write the proportion and solve by proportion.

4 It takes a man 9 hours to drive a certain distance at the rate of 7 miles an hour and to walk back at the rate of 3⅓ miles an hour; what is the distance?

5 Prove that the product of the greatest common divisor and the least common multiple of two numbers is equal to the product of the numbers.

6 A man bought goods at discounts of 20 and 30 from the list price and sold at discounts of 10 and 4 from the list price; he failed to collect 10% of his sales. Find his per cent of gain.

7 A man sold 5% stock at 84⅛ and invested the proceeds of the sale in 6% stock at 97⅞, brokerage in each case ⅛%; his income was thus increased $3. Find the amount of stock sold.

8 Two bodies weighing respectively 18 pounds and 24 pounds are attracting a third body; the first body is 40 feet distant from the body attracted, the second body 60 feet. Find the ratio of the attractions exerted by these two bodies. [The force of attraction varies directly as the weight of matter exerting it and inversely as the square of the distance through which it acts.]

9 Extract the cube root of 6,542,350.714927

10 The altitude of the frustum of a square pyramid is 11 feet; the sides of its square bases are respectively 24 feet and 18 feet. Find the number of cubic feet in the frustum.

11 A gives his note to B for $980 due in 6 months, money being worth 6%; B has the note discounted at a bank on the day the note is given. How much more would B have received had A paid the present worth of the debt?

12 A New York merchant buys 2000 meters of silk @ 7.2 francs a meter, paying a duty of 50% ad valorem; find in United States money the total cost to the merchant of a yard of the silk. [1 dollar=5.19 francs.]

University of the State of New York

High School Department

182D EXAMINATION

ADVANCED ARITHMETIC

Monday, June 13, 1904—9.15 a. m. to 12. 15 p. m., only

Answer eight questions but no more. *If more than eight are answered only the first eight answers will be considered. Give all operations (except mental ones) necessary to find results. Reduce each result to its simplest form and mark it Ans. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 Give an explanation of the principle for fixing the decimal point in (*a*) multiplication, (*b*) division.

2 Test the divisibility of 29,172 by 4, 6, 8, 9, 11 without dividing it by them. State the principle applied in each test. Write as many of the prime factors of 29,172 as are determined by this test.

3 If $a\%$ is lost by selling an article for $\$B$, what per cent is gained by selling it for $\$C$?

4 The weight of the oil in a cylindric tank 2 meters in diameter and 3.5 meters in hight, is 8.47 metric tons (tonneaus); what is the specific gravity of the oil (the ratio of its weight to the weight of an equal volume of water)?

5 Prove that in all cases the square of a mixed number whose fractional part is ½ is equal to ¼ plus the product of the integral part and a number 1 greater than the integral part.

6 Find the exact value of $.00\dot{2}47\dot{5} \div (\dot{2}\dot{7} \times .152\dot{7})$ and express the result both as a common fraction and as a circulating decimal.

7 A merchant buys 800 barrels of flour for $4400 and lists it at $8 a barrel, selling it at discounts of 10% and 10% from the list price; find his per cent of gain.

8 The entire surface of a cube is 121.5 square inches; find the volume and the diagonal of the cube.

9 Find the fourth term of the proportion $\sqrt[3]{5.832} : \sqrt{29\frac{1}{25}} :: \frac{1}{2} : x$

10 A man buys 40 shares of stock at 103½ and sells it 8 months later at 101⅜, meanwhile receiving a 4% dividend; find his gain or loss, money being worth 4% and brokerage being ⅛%.

11 The extremes of a geometric series are 1½ and 384, the sum of the series is 511.5; find (*a*) the ratio, (*b*) the number of terms.

12 Find the number of years, months and days that $720 must be at interest at 5% to amount to $814.90.

High School Department

179TH EXAMINATION

ALGEBRA

Tuesday, September 29, 1903—9.15 a. m. to 12.15 p. m., only

Answer the first four questions and four of the others but no more. *If more than four of the others are answered only the first four answers will be considered. Give all operations (except mental ones) necessary to find results. Reduce fractions to lowest terms. Express final result in its simplest form and mark it Ans. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 Simplify $\dfrac{\left(x-1+\dfrac{2}{x+1}\right)\left(\dfrac{4}{x-1}+x+3\right)}{x^2+1} \div \left(\dfrac{1}{x-1}+\dfrac{2}{(x-1)^2}\right)$

2 Factor *five* of the following: $12a^2+4a-1$, a^4+ab^3, b^7+c^7, $ab-3b-2a+6$, $(a-b)^3-1$, a^2-b^2+2b-1, $x^4+x^2y^2+y^4$

3 Solve $\begin{cases} \dfrac{a}{x}+\dfrac{b}{y}=1 \\ \dfrac{b}{x}+\dfrac{a}{y}=1 \end{cases}$

4 Solve $3x-5=\dfrac{6}{x}+\dfrac{11}{8}$

5 In an orchard containing 580 trees the number of rows of trees is 9 greater than the number of trees in a row; find the number of trees in a row.

6 Solve $\sqrt{x+1}=\sqrt{3x+1}-2$

7 Find the highest common factor (greatest common divisor) of $2x^3-2x^2-3x-2$ and $3x^3-x^2-2x-16$

8 Expand by the binomial theorem the first *four* terms of $\left(a-\dfrac{b}{2}\right)^6$, giving all the work for finding the coefficients.

9 The product of two numbers is 96; the sum of 2 times the first number and 3 times the second equals 52. Find the numbers.

10 Solve $\begin{cases} x^3-y^3=296 \\ x-y=2 \end{cases}$

11 Simplify $\sqrt{3x(x+7y)^2}+(x-y)\sqrt{27x}-\sqrt{48xy^2}$; $\dfrac{a+2\sqrt{b}}{a-2\sqrt{b}}$; $(a^{\frac{1}{3}}+b^{\frac{1}{3}})(a^{\frac{1}{2}}-b^{\frac{1}{2}})$

12 The area of a rectangle is 480 square inches and its diagonal is 34 inches; find the base and altitude of the rectangle.

High School Department

180TH EXAMINATION

ALGEBRA

Monday, January 25, 1904—9.15 a. m. to 12.15 p. m., only

Answer the first four questions and four of the others but no more. If more than four of the others are answered only the first four answers will be considered. Give all operations (except mental ones) necessary to find results. Reduce each result to its simplest form and mark it Ans. Each complete answer will receive $12\frac{1}{2}$ credits. Papers entitled to 75 or more credits will be accepted.

1 Define term, polynomial, elimination, surd, affected quadratic.

2 Factor *five* of the following: $a^{2b+1}-a$, $27+y^3$, a^4-3a^2+1, $6b^2-7bx-20x^2$, a^2b-b+a^2c-c, a^2-x^2+2x-1, $3x^6+c$

3 Solve $\frac{7m^2}{12}-mx=\frac{x^2}{3}$

4 Solve $\begin{cases} x^2-y^2=112 \\ x+y=14 \end{cases}$

5 Simplify

$$a^2-[-2b^2+b(7b-3a)-\{-\overline{3ab+a^2}-b(\overline{a-2a+2b})\}]+3b^2$$

6 Two men can do a piece of work in a days; one man does $\frac{3}{4}$ as much as the other. How long will it take each man to do the work alone?

7 Find the cube root of

$$m^6-6m^5+6m^4+16m^3-12m^2-24m-8$$

8 Solve $2a=\sqrt{2ax+5a^2}-\sqrt{2ax-3a^2}$

9 Expand $(2x-3)^n$ to *five* terms by the binomial theorem, giving all the work for finding the coefficients.

10 A man rows down stream a distance of 15 miles and back again in 6 hours; he can row 5 miles with the stream in the same time as 3 against the stream. Find the man's rate of rowing in still water.

11 Simplify

$$\frac{7-\sqrt{5}}{8-\sqrt{5}};\quad (\sqrt[3]{x^2}-2\sqrt[3]{x}-1)(\sqrt[3]{x}-1);\quad \frac{a^{\frac{1}{2}}}{\sqrt{b^{-3}}}-\frac{3\sqrt{ab^{-1}}}{a^{-1}b^{-2}}+\frac{\sqrt{a^2b}}{b^{-1}}$$

12 Two cubic bins together contain 855 cubic feet; the sum of an edge of the larger bin and an edge of the smaller bin is 15 feet. Find an edge of each bin.

High School Department

180TH EXAMINATION

ADVANCED ALGEBRA

Tuesday, January 26, 1904—9.15 a. m. to 12.15 p. m., **only**

***Answer eight questions but* no more.** *If more than eight are answered only the first eight answers will be considered. Give all operations (except mental ones) necessary to find results. Reduce each result to its simplest form and mark it Ans. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 Define detached coefficient, derived polynomial, logarithm, commensurable root, recurring series.

2 Solve as a quadratic $\sqrt{x^2-10x+46}+(x-5)^2=9$

3 Expand $(x+1)^{\frac{3}{2}}$ to *four* terms by the method of undetermined coefficients.

4 B travels 3 miles the first day, 7 miles the second day, 11 miles the third day etc.; in how many days will B overtake A who started from the same point 8 days in advance and who travels uniformly 15 miles a day?

5 Form an equation of the fourth degree with rational coefficients, one of whose roots is $\sqrt{3}+\sqrt{-2}$

6 Assuming that $a:b::b:c::c:d$, prove that $a:d::a^3:b^3$

7 Express $\frac{1}{2+}\,\frac{1}{1+}\,\frac{1}{1+}\,\frac{1}{1+}\,\frac{1}{2+}\,\frac{1}{8}$ as a common fraction and find the fifth convergent.

8 Derive a formula for finding (*a*) the number of permutations of *n* quantities taken *r* at a time, (*b*) the number of combinations of *n* quantities taken *r* at a time.

9 Transform the following equation into one whose coefficients are integral, that of the first term being unity:

$$2x^3+2\tfrac{1}{6}x^2+\tfrac{1}{3}x-\tfrac{1}{12}=0.$$

10 Given the inequality $x-z<y$, the terms x, y and z being positive; show the effect of multiplying the inequality by $+a$, by $-a$; of changing the signs of all the terms; of transposing z.

11 Given $\log\frac{1}{2}=\bar{1}.6990$; solve by use of logarithms $8^{x+3}=5^{2x-}$

12 Using Horner's method of approximation, compute to *three* places of decimals the root of $x^3+2x^2-23x-70=0$, that lies between 5 and 6.

University of the State of New York

High School Department

182D EXAMINATION

ADVANCED ALGEBRA

Tuesday, June 14, 1904—9.15 a. m. to 12.15 p. m., only

Answer eight questions but no more. *If more than eight are answered only the first eight answers will be considered. Give each step of solution. Reduce fractions to lowest terms. Express final result in its simplest form and mark it Ans. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 Divide $x^2+2x-\frac{16}{x^2}-\frac{32}{x^3}$ by $\sqrt{x}+\frac{4}{\sqrt{x}}+\frac{4}{\sqrt{x^3}}$

2 Find the number of combinations of 72 different things taken 68 at a time.

3 State the theorem of undetermined coefficients and give *three* of its applications.

4 Interpret the forms $\frac{a}{0}$, $\frac{a}{\infty}$, $\frac{0}{0}$, $\frac{\infty}{\infty}$ Explain in each case.

5 Find the three cube roots of unity. Prove that of these three roots (*a*) one imaginary root is the square of the other, (*b*) the sum of the three roots is zero, (*c*) the product of the two imaginary roots is unity.

6 If a, b and c are unequal positive numbers, prove that $a^2+b^2+c^2>ab+ac+bc$.

7 Find the square root of $31-10\sqrt{6}$

8 Solve $x^4+x^3-17x^2-5x+60=0$

9 Find the sum of 4, $-\frac{8}{3}$, $\frac{16}{9}$ . . . to infinity.

10 Of an equation of the fifth degree in the general form three of the roots are a, $-b$ and $-c$; find (*a*) the sum of the other roots if the second term is wanting, (*b*) *one* of the other roots if the last term is wanting, (*c*) *each* of the other roots if both the second and the last term are wanting.

11 By the method of differences find the 13th term of the series $-a+1$, 1, $2a+2$, $5a+5$, $9a+11$ etc.

12 State and illustrate *three* principles relating to determinants.

High School Department

181ST EXAMINATION

PLANE GEOMETRY

Wednesday, March 23, 1904—9.15 a. m. to 12.15 p. m., only

Answer eight questions but no more, *including at least one from each of the three divisions. If more than eight are answered only the first eight answers will be considered. Draw carefully and neatly each figure in construction or proof, using letters instead of numerals. Arrange work logically. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

First division 1 Define *five* of the following: axiom, problem, hypothesis, scalene triangle, segment, circumscribed polygon, locus of a point.

2 Write *three* theorems that conclude "the two straight lines are parallel." Demonstrate *one* of these theorems.

3 Complete and demonstrate the following: the sum of the three angles of a triangle is equal to . . .

4 Complete *each* of the following theorems and demonstrate *one* of them: (*a*) if two circles intersect each other . . . , (*b*) if two circles are tangent to each other . . .

5 Prove that the homologous altitudes of two similar triangles have the same ratio as any two homologous sides.

Second division 6 Chords drawn from a point in a circumference to the extremities of a diameter are respectively 10 inches and 13½ inches; find the diameter and the distance of the point from the diameter.

7 From a point within an equilateral triangle the perpendiculars to the sides are respectively 2 inches, 3 inches and 5 inches; find the area of the triangle.

8 The area of a sector is 18π, the angle of the sector is 80°; find the radius of the sector.

9 The base of a triangle is 15 feet, its area 60 square feet; find the area of a similar triangle whose altitude is 6 feet.

10 A leg of an isosceles trapezoid is 13 inches and its projection on the longer base is 5 inches; the longer base is 17 inches. Find the area of the trapezoid.

Third division 11 Show how to construct a right triangle having given one leg and the altitude on the hypotenuse.

12 Show how to bisect an angle formed by two converging lines without producing the lines till they meet.

13 Write the formula for the area of any triangle in terms of its sides and from this formula derive the formula for the area of an equilateral triangle in terms of one side.

14 Prove that the lines joining the middle points of the sides of a triangle divide the triangle into four equal triangles.

15 Prove that lines from the center of a circle to the ends of a leg of the circumscribed trapezoid form a right angle.

University of the State of New York

High School Department

182D EXAMINATION

PLANE GEOMETRY

Wednesday, June 15, 1904—9.15 a. m. to 12.15 p. m., only

Answer eight questions but **no more,** *including at least one from each of the three divisions. If more than eight are answered only the first eight answers will be considered. Draw carefully and neatly each figure in construction or proof, using letters instead of numerals. Arrange work logically. Each complete answer will receive $12\frac{1}{2}$ credits. Papers entitled to 75 or more credits will be accepted.*

First division 1 Prove that the sum of two lines drawn from a point to the extremities of a straight line is greater than the sum of two lines similarly drawn but included by them.

2 Prove that two right triangles are equal if a leg and the hypotenuse of the one are equal respectively to a leg and the hypotenuse of the other.

3 Prove that a diameter perpendicular to a chord bisects the chord and the arc subtended by it.

4 Complete the following: an inscribed angle is measured by . . . Demonstrate *two* cases.

5 Complete and demonstrate the following: the areas of two similar triangles are to each other as . . .

Second division 6 Find the number of sides of a regular polygon if (*a*) an interior angle is 135°, (*b*) an exterior angle is 72°. Mention the name of the polygon in each case.

7 Find the area of a triangle whose base is 10 inches and whose base angles are 120° and 30° respectively.

8 The sides of a triangle are 8 inches, 9 inches and 11 inches respectively; find the median to the longest side.

9 The area of an equilateral triangle is $48\sqrt{3}$; find the altitude of the triangle.

10 The centers of two circles whose radii are 12 inches and 9 inches respectively are 28 inches apart; find how far from the center of each circle the line of centers is cut by a common tangent.

Third division 11 Show how to construct the triangle mentioned in question 7.

12 Show how to find the center of a given circle. Give proof.

13 Prove that the diagonals of any parallelogram divide it into four equivalent triangles.

14 Prove that the area of an isosceles right triangle equals one fourth the square of its hypotenuse.

15 Two circles are tangent at *M*, and *AMB* is a secant cutting the circumferences at *A* and *B*; prove that tangents to the circles at *A* and *B* are parallel.

High School Department

180TH EXAMINATION

SOLID GEOMETRY

Friday, January 29, 1904 — 1.15 to 4.15 p. m., only

Answer eight questions but **no more.** *If more than eight are answered only the first eight answers will be considered. Draw carefully and neatly each figure in construction or proof, using letters instead of numerals. Arrange work logically. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

First division 1 Prove that the intersections of two parallel planes with a third plane are parallel lines.

2 Prove that a straight line perpendicular to one of two parallel planes is perpendicular to the other also.

3 Prove that the sum of any two face angles of a triedral angle is greater than the third face angle.

4 Complete and demonstrate the following: an oblique prism is equivalent to a right prism whose base . . .

5 Prove that if the base of a cone is a circle, every section parallel to the base is a circle.

6 Prove that a spheric angle is measured by the arc of a great circle described from its vertex as a pole, and included between its sides produced if necessary.

Note — Use π instead of its approximate value 3.1416.

Second division 7 Find the surface of a sphere whose volume is $366\frac{1}{6}\pi$ cubic inches.

8 The sides of a parallelogram which are 12 inches and 8 inches respectively, form an angle of 60°; find the volume and the convex surface of the solid generated by the revolution of the parallelogram about one of its longer sides as an axis.

9 Find the total area of a cone inscribed in a regular triangular pyramid whose altitude is 12 inches and whose lateral edge is $2\sqrt{61}$ inches.

10 The volume of the frustum of a cone of revolution is 105π cubic inches; the altitude of the frustum is 5 inches, and the radius of the upper base is 3 inches. Find the radius of the lower base of the frustum.

11 The angles of a spheric triangle are 80°, 95° and 140° respectively; the radius of the sphere is 8 inches. Find in square inches the area of the triangle.

12 Prove that the smallest section of a sphere made by a plane passing through a given point within the sphere, is that made by a plane perpendicular to the radius through the given point.

High School Department

182D EXAMINATION

SOLID GEOMETRY

Friday, June 17, 1904—1.15 to 4.15 p. m., only

Answer eight questions but **no more.** *If more than eight are answered only the first eight answers will be considered. Draw carefully and neatly each figure in construction or proof, using letters instead of numerals. Arrange work logically. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

First division 1 Mention and describe the five regular polyedra. Show that there can be no regular polyedron bounded by hexagons.

2 Prove that a line perpendicular to each of two lines at their point of intersection is perpendicular to the plane of those lines.

3 Prove that the opposite lateral faces of a parallelepiped are equal and parallel.

4 Complete and demonstrate the following: two rectangular parallelepipeds are to each other as . . .

5 Give the formula for the volume of (*a*) any prism, (*b*) a circular cone. Derive *one* of these formulas.

6 The volume of a sphere is equal to the product of the area of its surface by one third of the radius. Prove this formula without deriving it from some other formula for the volume of a sphere.

NOTE—Use π instead of its approximate value 3.1416.

Second division 7 Find the length of the projection on a plane of a line 8 inches long (*a*) parallel to the plane, (*b*) making an angle of 60° with the plane. What is the projection of the line if it is perpendicular to the plane?

8 A square and its inscribed circle are revolved about the diagonal of the square as an axis; the side of the square is *a*. Find the surface and the volume of each solid generated.

9 The lateral edges of a truncated triangular prism are 6 inches, 5 inches and 8 inches; the sides of a right section are 10 inches, 9 inches and 17 inches. Find the volume of the solid.

10 The volume of a regular square pyramid is $42\frac{2}{3}$ cubic feet, its altitude is twice one side of the base; find (*a*) the lateral area of the pyramid, (*b*) the area of a section made by a plane parallel to the base and 1 foot from the base.

11 Find the volume of a hollow cylinder 2 inches thick, 8 feet long and 10 inches in its outer diameter.

12 Prove that every section of a prism made by a plane parallel to the lateral edges is a parallelogram.

High School Department

180TH EXAMINATION

TRIGONOMETRY

Thursday, January 28, 1904—9.15 a. m. to 12.15 p. m., only

Answer eight questions but **no more.** *Include at least three from the third division if credit is desired for both plane and spheric trigonometry. If more than eight are answered only the first eight answers will be considered. Division of groups is not allowed. A, B and C represent the angles of a triangle, a, b and c the opposite sides. In a right triangle C represents the right angle. Each complete answer will receive $12\frac{1}{2}$ credits. Papers entitled to 75 or more credits will be accepted.*
Give special attention to arrangement of work.

First division 1 Define radian, negative angle, third quadrant, mantissa of a logarithm, angle of depression.

2 Find the number of degrees in A when $3 \sin A = 2 \cos^2 A$

3 Write with their algebraic signs the numeric values of *six* functions of an angle of 585°.

4 Complete and demonstrate the following: the cosine of the difference of two angles is equal to . . .

Second division 5 In a plane triangle $a=32$ feet, $b=40$ feet, $c=50$ feet; find A, B and C.

6–7 Given in a plane triangle $a=20.94$, $b=25.96$, $A=44° 11'$; find *two* possible values for each of B, c and C.

8 Show the application of trigonometry to finding the distance across an impassable stream. Give diagram and all formulas necessary to solve the case selected.

Third division 9 Prove that if the hypotenuse of a right spheric triangle is less than 90°, the legs are in the same quadrant, and that if the hypotenuse is greater than 90°, the legs are in different quadrants.

10 In a right spheric triangle $a=77° 22'$, $B=151° 10'$; find A, b and c.

11 In an oblique spheric triangle $A=172° 18'$, $B=8° 28'$, $C=4° 24'$; find a.

12 Find the hour of sunrise and of sunset today at Washington, D. C.; the latitude of Washington is 38° 53′ north and the sun's declination 18° 29′ 20″.

University of the State of New York

High School Department

182D EXAMINATION

TRIGONOMETRY

Thursday, June 16, 1904—9.15 a. m. to 12.15 p. m., only

Answer eight questions but **no more.** *Include at least three from the third division if credit is desired for both plane and spheric trigonometry. If more than eight are answered only the first eight answers will be considered. Division of groups is not allowed. A, B and C represent the angles of a triangle, a, b and c the opposite sides. In a right triangle C represents the right angle. Each complete answer will receive* 12½ *credits. Papers entitled to 75 or more credits will be accepted.*

Give special attention to arrangement of work.

First division 1 Define cologarithm, trigonometric function, inverse function, negative angle, characteristic of a logarithm.

2 Express in terms of cosine x, the value of *each* of the following: $\sin \frac{1}{2}x$, $\cos \frac{1}{2}x$, $\tan \frac{1}{2}x$, $\sec \frac{1}{2}x$.

3 Derive the formula for the value of $\tan(x+y)$ expressed in terms of $\tan x$ and $\tan y$.

4 Derive the numeric values of sine, tangent, cosine and secant of 30°.

Second division 5 Show how to solve a triangle when two sides and the included angle are given. Give all the formulas necessary to be used.

6–7 The three sides of a plane triangle are 245.76 feet, 183.28 feet, and 121.32 feet; find the three angles.

8 In a right triangle $A=52°$, $a=175$ feet; find b and c.

Third division 9 Define polar triangle. State and prove the relation existing between a spheric triangle and its polar triangle.

10 In a right spheric triangle $b=15°$, $c=148° \ 30'$; find a.

11 The sides of a spheric triangle are each $54° \ 30'$; find an angle of the triangle.

12 Show how to determine the latitude of a place when the altitude and declination of the sun and the time of day are given.

High School Department

180TH EXAMINATION

ASTRONOMY

Thursday, January 28, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: celestial sphere, faculae, eclipse, planet, node, perigee, saros.

2 Mention the circles, points and measurements of the horizon system, stating the position of each important circle and point, and defining each measurement.

3 Mention a proof that the sun (*a*) rotates on its axis, (*b*) has a real motion in space.

4 Draw a diagram showing the relative positions of the sun, earth and planet Venus, when the latter is (*a*) in superior conjunction, (*b*) in inferior conjunction, (*c*) at its greatest elongation.

5 Explain by aid of a diagram why the sun is a longer time in passing from the vernal to the autumnal equinox than in passing from the autumnal to the vernal equinox.

6 State the form of the earth. Describe a scientific method of determining the precise form of the earth.

7 Explain by aid of a diagram the varying phases of the moon.

8 Explain by aid of a diagram the following phenomena: (*a*) spring tide, (*b*) neap tide.

9 Describe how *each* of the following may be found by an observation of the sun: (*a*) the latitude of a place, (*b*) the longitude of a place.

10 State the circumstances that led to the discovery of the planet Neptune. Describe Neptune as to (*a*) physical condition, (*b*) sidereal period.

11 Describe comets, as to (*a*) appearance, (*b*) density, (*c*) dimensions, (*d*) orbits.

12 Define parallax. Distinguish between horizontal parallax and annual parallax.

13 Define refraction of light. Show by aid of a diagram the displacement due to refraction in the apparent position of a star.

14 Describe a scientific method of determining the physical constitution of a star.

15 Mention in order *three* constellations of the zodiac that are above the horizon in your longitude today at 8 p. m. Describe *one* of the constellations mentioned.

High School Department

182D EXAMINATION

ASTRONOMY

Thursday, June 16, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Describe the development of the solar system according to the nebular hypothesis.

2 Find the value of the greatest and of the least angle that the ecliptic makes with the horizon at 42° 39′ N. Lat.

3 State the present (Kirchhoff) theory regarding the physical constitution of the sun. Account for sun spots by this theory.

4 Explain by aid of a diagram the difference between a sidereal and a synodic revolution of a superior planet.

5 State *two* reasons why summer is warmer than winter. Explain why summer in the northern hemisphere is longer than winter in the same hemisphere.

6 Distinguish between the civil day and the astronomic day. State in what respects the Gregorian calendar differs from the Julian calendar. Explain.

7 Distinguish between harvest-moon and hunter's moon. Explain by aid of a diagram the phenomenon of the harvest-moon.

8 Show by aid of a diagram the position of the moon in regard to its nodes when its shadow during a solar eclipse falls on the earth (*a*) north of the equator, (*b*) south of the equator.

9 Describe the planet Mercury as to (*a*) size, (*b*) length of year, (*c*) telescopic appearance.

10 Assuming that the mean distance of the sun from the earth is 93,000,000 miles and that the earth makes 30 revolutions around the sun while Saturn makes one revolution, find the mean distance of Saturn from the sun.

11 Give the location of the zodiac and mention in order its signs.

12 Define variable stars. Mention *two* variable stars and give the name of the constellation in which each is found.

13 State the cause of twilight. Explain why twilight toward the poles lasts longer than twilight at the equator.

14 An observer at Philadelphia Pa. finds the altitude of β Orionis as it crosses the meridian to be 41° 44′; the declination of this star is 8° 19′ south. Find the latitude of Philadelphia Pa.

15 Give the location of *one* important astronomic observatory. Explain why it is important to observe *each* of the following in selecting a site for an astronomic observatory: elevation, nearness to towns, prevailing atmospheric conditions.

High School Department

179TH EXAMINATION

PHYSICS

Wednesday, September 30, 1903—9.15 a. m. to 12.15 p. m., only

---

Answer 10 questions but **no more**; *of these 10 questions at least five must be from part 1 in order to receive credit for part 1 and at least five from part 2 in order to receive credit for part 2. Answer 10 questions in all cases, whether credit is desired for either one of the two parts or for both parts. If more than 10 are answered only the first 10 answers will be considered. Give all computations in full. Do not reduce metric to other measures. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

Part 1 1 Distinguish between (*a*) mass and weight, (*b*) endosmosis and exosmosis, (*c*) sensible heat and latent heat.

2 State the relations of heat to the solid, liquid and gaseous states of matter.

3 At the ends of a horizontal bar 5 meters long are suspended weights of 3 kilograms and 7 kilograms respectively; find the point at which the bar must be supported in order that it may balance.

4 Derive the formula that expresses the space traversed in *n* seconds by a body falling freely from a state of rest.

5 Describe a method of proving by means of a pendulum the rotation of the earth on its axis.

6 Find how many cubic feet of water will be discharged in 5 seconds from an orifice having an area of ¼ of a square foot at an average depth of 15 feet below the surface of the water in a tank. [Make no allowances.]

7 Describe a laboratory experiment for finding the specific gravity of an irregular piece of lead.

8 Explain why in a mercurial barometer a continued rise of the mercury indicates fair weather and a continued fall indicates foul weather.

9 Describe the transmission of heat by (*a*) conduction, (*b*) convection.

10 Discuss the relative merits of hot air, hot water and steam for heating a three story public school building containing 12 rooms.

Part 2 11 State the laws in accordance with which the poles of different magnets act on one another and describe an experiment illustrating the laws.

12 Compare the action of electricity generated by friction with that generated by chemical action.

13 Describe, mentioning all the substances used, (*a*) the Grenet cell, (*b*) the Daniell cell.

14 Describe by aid of a diagram the method of determining the resistance of a given conductor by means of the Wheatstone bridge.

15 Describe the construction and explain the operation of a thermo-electric pile. Mention *one* practical application of the thermo-electric pile.

16 State what is meant by interference of sound. Describe a laboratory experiment illustrating interference of sound.

17 Compare the pitch of a closed organ-pipe with that of an open organ-pipe of the same length. Explain.

18 Give *one* of the following theories to account for the production and transmission of light: the undulatory, the electromagnetic.

19 Describe the method of determining by a Rumford photometer the intensity of a given light.

20 An arrow is placed vertically point downward 3 feet before the eye; draw a vertical section of the eye and show the position of the arrow, the crystalline lens, the image and the paths of the rays of light.

High School Department

180TH EXAMINATION

PHYSICS

Wednesday, January 27, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more**; *of these 10 questions at least five must be from part 1 in order to receive credit for part 1 and at least five from part 2 in order to receive credit for part 2. Answer 10 questions in all cases, whether credit is desired for either one of the two parts or for both parts. If more than 10 are answered only the first 10 answers will be considered. Give all computations in full. Do not reduce metric to other measures. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

A laboratory course previously approved by the inspector, with notebook certified by the principal, may receive 20 credits toward the examination, in which case only eight questions are to be answered, four from each part as above.

Part 1 1 Mention and define the property of matter illustrated by *each* of the following: (*a*) the rebound of a ball, (*b*) the continuance of rotation of the earth on its axis, (*c*) the displacement of its own volume by a solid immersed in a liquid.

2 Define capillary attraction. Describe a laboratory experiment illustrating capillary attraction.

3 Define (*a*) foot-pound, (*b*) horse-power. Compute the horse-power of an engine that can raise 3850 pounds 175 feet in 49 seconds.

4 Find the initial velocity with which a body must be projected downward from the top of a tower 300 feet high in order that it may reach the ground in 3 seconds. [Make no allowances.]

5 Find the length of a pendulum that makes 3 oscillations while a pendulum 70 centimeters long makes 2 oscillations.

6 Describe an experiment to illustrate the equal transmission of pressure in all directions by liquids inclosed in a vessel.

7 Describe by aid of a diagram the operation of a common suction-pump.

8 Define heat. State a theory to explain the fact that most solids expand when heated and contract when cooled.

9 Explain the efficiency of storm-windows for retaining the heat in buildings.

10 Find the temperature of the mixture formed by mixing 12 pounds of water at 40° C. with 16 pounds of water at 60° C.

Part 2 11 Define magnet. Describe the manner in which *each* of the following forms of artificial magnets is made: (*a*) temporary magnet, (*b*) permanent magnet.

12 A battery of 10 voltaic cells is connected in series. The electromotive force of each cell is 1.1 volts and its internal resistance 1.5 ohms. Find what current the battery will send through a circuit having an external resistance of 50 ohms.

13 Describe in detail the process of electrotyping.

14 Describe and explain a laboratory experiment to illustrate the transformation of electric energy into heat.

15 Describe the construction and explain the operation of the magneto-electric machine.

16 Find the length of sound-waves propagated through air at a temperature of 35° C. by a body that vibrates 320 times a second.

17 Describe the construction and explain the operation of the siren.

18 Discuss radiant energy, touching on (*a*) its nature, (*b*) its propagation, (*c*) its phenomena.

19 Describe the construction and explain the operation of some form of the stereopticon.

20 Distinguish between spherical aberration and chromatic aberration.

High School Department

181ST EXAMINATION

PHYSICS

Wednesday, March 23, 1904—9.15 a. m. to 12.15 p. m., **only**

Answer 10 questions but no more; *of these 10 questions at least five must be from part 1 in order to receive credit for part 1 and at least five from part 2 in order to receive credit for part 2. Answer 10 questions in all cases, whether credit is desired for either one of the two parts or for both parts. If more than 10 are answered only the first 10 answers will be considered. Give all computations in full. Do not reduce metric to other measures. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

A laboratory course previously approved by the inspector, with notebook certified by the principal, may receive 20 credits toward the examination, in which case only eight questions are to be answered, four from each part as above.

Part 1 1 Define gravity, inertia, potential energy, kinetic energy, transformation of energy. Illustrate each by the vibrating pendulum.

2 Define tenacity. Explain why, under similar conditions, the tenacity of rods varies as the square of the diameter.

3 Find the weight of a body at the surface of the earth, that would weigh 2000 pounds if placed 3000 miles above the earth. [Assume that the earth's diameter=8000 miles.]

4 Explain by aid of a diagram how to find the resultant and its point of application of two forces attached to a rigid bar and acting (*a*) in the same direction along parallel lines, (*b*) in opposite directions along parallel lines.

5 Define center of mass. Describe an experiment to find the center of mass of an irregular body.

6 Make a diagram of a combination of fixed and movable pulleys by means of which a power of 8 pounds will support a weight of 64 pounds.

7 State Pascal's law. Explain Pascal's law according to the molecular theory.

8 Explain by aid of a diagram the reaction that produces the motion in a rotary lawn-sprinkler.

9 Describe in detail the process of graduating a thermometer according to the centigrade scale. Convert 23° above zero F. into the corresponding reading C.

10 Describe the construction and explain the operation of the steam-chest, cylinder and piston of a low-pressure steam-engine.

Part 2 11 Describe the construction and explain the operation of the astatic needle. Mention *one* practical use of the astatic needle.

12 Describe the construction and explain the operation of some form of electric machine for generating static (frictional) electricity.

13 Define shunt. Describe a laboratory experiment showing the effect of introducing a shunt into an electric circuit.

14 Write an account of voltaic (current) electricity, touching on (*a*) physical effects, (*b*) chemical effects, (*c*) physiologic effects.

15 Describe the construction and explain the operation of a simple dynamo.

16 Describe an experiment to show on what the intensity (loudness) of sound depends.

17 The time required for a sound to pass from station A to station B is one second more when the temperature is −4 C. than when it is 36° C. Find the distance between A and B.

18 Compare light with sound, as to (*a*) source, (*b*) propagation, (*c*) velocity.

19 Mention and illustrate by a drawing each of *six* forms of lenses.

20 Describe the appearance and explain the formation of Newton's rings.

High School Department

182D EXAMINATION

PHYSICS

Wednesday, June 15, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more**; *of these 10 questions at least five must be from part 1 in order to receive credit for part 1 and at least five from part 2 in order to receive credit for part 2. Answer 10 questions in all cases, whether credit is desired for either one of the two parts or for both parts. If more than 10 are answered only the first 10 answers will be considered. Give all computations in full. Do not reduce metric to other measures. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

A laboratory course previously approved by the inspector, with notebook certified by the principal, may receive 20 credits toward the examination, in which case only eight questions are to be answered, four from each part as above.

Part 1

1 Define and illustrate *five* of the following: capillarity, force, vaporization, cohesion, momentum, solution, ductility.

2 Describe a laboratory experiment to illustrate osmose of liquids.

3 Two parallel forces of 8 dynes and 12 dynes respectively act in the same direction on an inflexible bar at points 10 inches apart; find the magnitude and show by diagram the direction and the point of application of the resultant of the two forces.

4 Describe the construction of Atwood's machine and explain its use to deduce the laws of falling bodies.

5 In a wheel and axle, the radius of the wheel is 5 feet, the power is 50 pounds and the weight 500 pounds; find what must be the radius of the axle to maintain equilibrium.

6 Describe a laboratory experiment to show that (*a*) the atmosphere exerts a pressure upward, (*b*) the air has weight.

7 A rectangular vessel 3 decimeters square and 2 decimeters deep is full of water; find the total pressure on the inside of the vessel.

8 Describe the construction and explain the operation of *one* of the following combinations: (*a*) wet and dry bulb thermometers, (*b*) maximum and minimum thermometers.

9 Define conduction of heat. Describe a laboratory experiment to show that water is a poor conductor of heat.

10 Define (*a*) absolute zero, (*b*) absolute temperature. Convert −20° C. into the corresponding absolute temperature C.

Part 2 11 Mention and explain the variations and declinations of the magnetic needle.

12 Compare the distribution of static electricity on an insulated conductor of spheric form with that on an insulated conductor of spindle-shaped form. Explain.

13 Describe the construction and explain the operation of a Leyden jar.

14 State the relations between internal and external resistance under which the grouping of voltaic cells in parallel will give the greatest efficiency. Explain.

15 Describe the construction and explain the operation of the Ruhmkorff coil. Mention *one* practical use of the Ruhmkorff coil.

16 Describe a graphic method by which the pitch of two tuning forks may be compared.

17 A person sees a flash of lightning and 15 seconds later first hears the corresponding thunder; find the person's distance from the electric discharge, assuming the temperature to be 35° C.

18 Describe a laboratory experiment to show that, other conditions being the same, the number of vibrations per second of a vibrating chord varies inversely as the length of the chord.

19 Explain the formation of images by light passing through small apertures.

20 Explain by aid of a diagram the formation of (*a*) the primary rainbow, (*b*) the secondary rainbow.

High School Department

180TH EXAMINATION

CHEMISTRY

Wednesday, January 27, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more;** *of these 10 questions at least five must be from part 1 in order to receive credit for part 1 and at least five from part 2 in order to receive credit for part 2. Answer 10 questions in all cases, whether credit is desired for either one of the two parts or for both parts. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

A laboratory course previously approved by the inspector, with notebook certified by the principal, may receive 20 credits toward the examination, in which case only eight questions are to be answered, four from each part as above.

Part 1 1 Define and illustrate *five* of the following: chemical affinity, element, acid salt, efflorescence, ion, monobasic acid, disinfectant.

2 State and illustrate the law of definite proportions.

3 Describe a method of preparing nitrogen from the air. Compare nitrogen with oxygen as to physical and chemical properties.

4 Distinguish between an acid and a base, as to (*a*) composition, (*b*) physical and chemical properties.

5 Find the number of grams of HCl that can be set free by the complete action of 10 grams of sulfuric acid on common salt. [Atomic weight of S=32, of O=16, of Cl=35.5.]

6 Describe the process of converting (*a*) limestone into quicklime, (*b*) quicklime into slaked lime. Write the reaction in each case.

7 Describe a method of preparing sulfur dioxid and write the reaction. Mention the physical and the chemical properties of sulfur dioxid.

8 Describe a process of obtaining copper from one of its ores. Mention (*a*) the properties of copper, (*b*) the important uses of copper.

9 Describe the process of extracting iron from one of its oxids by means of the blast-furnace.

10 Write the chemical formula of *each* of the following: manganese dioxid, sodium carbonate, ferric sulfate, potassium nitrate, silver chlorid.

Part 2 11 Describe the preparation, state the important uses and give the properties of (*a*) charcoal, (*b*) lampblack.

12 Describe a method of preparing carbon dioxid by the action of an acid on a carbonate. Write the reaction. Explain why carbon dioxid is dangerous to animal life.

13 Describe the changes that take place when grape juice undergoes (*a*) alcoholic fermentation, (*b*) acetic fermentation. Write the reaction in each case.

14 Compare, as to light and heat, the flame of a Bunsen burner when the holes at the base of the lamp are open with the flame when the holes are closed. Explain.

15 Describe a method of preparing sulfuric (common) ether. Mention the properties and the use of sulfuric ether.

16 Find the weight of *each* of the products formed by the complete combustion of 52 grams of camphene ($C_{10}H_{16}$). [Atomic weight of C=12.]

17 Mention *three* organic acids. State the physical and the chemical properties of *one* of the acids mentioned.

18 Describe a process of extracting the metal arsenic from one of its ores. Mention the physical and the chemical properties of arsenic.

19 Write the graphic formula of marsh-gas. Find the percentage composition of marsh-gas.

20 Complete the following equations, showing the reactions that would take place:

$2NaNO_3+H_2SO_4=$

$CaC_2+2H_2O=$

$6KOH+2C=$

High School Department

182D EXAMINATION

CHEMISTRY

Wednesday, June 15, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more**; *of these 10 questions at least five must be from part 1 in order to receive credit for part 1 and at least five from part 2 in order to receive credit for part 2. Answer 10 questions in all cases, whether credit is desired for either one of the two parts or for both parts. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

A laboratory course previously approved by the inspector, with notebook certified by the principal, may receive 20 credits toward the examination, in which case only eight questions are to be answered, four from each part as above.

Part 1 1 Define and illustrate *five* of the following: molecular weight, anhydrid, deliquescence, antiseptic, precipitate, monad, occlusion.

2 Define dissociation. Describe a laboratory experiment to illustrate the dissociation of a chemical compound by the aid of electricity.

3 Mention *four* important constituents of the air and explain why each constituent mentioned is important.

4 State and illustrate Avogadro's (Ampère's) law. Mention a method of finding the molecular weight of a given chemical compound when its atomic weights are not known.

5 Describe in detail an experiment to illustrate the bleaching properties of chlorin. Explain.

6 Describe the Solvay process of manufacturing sodium carbonate. Write the reactions.

7 Find the percentage composition of HNO_3. Describe a method of preparing nitric acid, writing the reaction. Mention the uses of nitric acid. [Atomic weight of $N=14$, of $O=16$.]

8 Describe a method of preparing ammonia by the action of an alkali on an ammonium salt. Write the reaction.

9 Mention *three* ores of zinc. Describe the ordinary method of extracting zinc from *one* of the ores mentioned. Write the reaction or reactions.

10 Complete the following equations, showing the reactions that would take place:

$$2NaCl+H_2SO_4=$$
$$2Na+2H_2O=$$
$$Cu+2H_2SO_4=$$

Part 2

11 Define kindling point. Write the following in the order of their kindling points: charcoal, sulfur, and phosphorus.

12 Describe an experiment to show the presence of *each* of the following in kerosene oil: (*a*) carbon, (*b*) hydrogen.

13 Find how many grams of $CaCO_3$ must be used to produce 88 grams of carbon dioxid by the action of HCl. [Atomic weight of Ca = 40, of C = 12]

14 State what is meant by the vapor density of a gas. Find the molecular weight of a gas whose vapor density is [illegible]

15 Mention the source of gas-carbon. State the physical properties and *one* use of gas-carbon.

16 Draw a vertical section of a typical Bunsen flame to show its structure. Explain how the Bunsen flame may be used as (*a*) an oxidizing flame, (*b*) a reducing flame.

17 State the practical use and explain the efficiency of the Davy safety-lamp.

18 Mention the chemical name and write the formula of *each* of two oxids of phosphorus. Describe a method of preparing *each* of the oxids mentioned.

19 Describe in detail Marsh's test for arsenic. Write the reactions.

20 Mention (*a*) *two* hydrocarbons, (*b*) *one* carbohydrate. Write the chemical formula of *each* of the compounds mentioned.

High School Department

180TH EXAMINATION

GEOLOGY

Friday, January 29, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: drumlin, metamorphism, diatom, base level, schist, lignite, geode.

2 Mention and characterize *four* varieties of common igneous rocks.

3 State the relation of stratified to unstratified rocks in the earth's crust.

4 State the conditions necessary for the formation of (*a*) cascades, (*b*) caverns.

5 Describe *two* types of volcanoes as illustrated by Mount Vesuvius and Mount Kilauea.

6 Mention *five* specific ways by which degradation (denudation) of rock is effected.

7 Under what conditions are sheets of rock said to be (*a*) intrusive, (*b*) extrusive?

8 Describe deep sea calcareous formations. State the sources of phosphatic formations.

9 Give the cause of the formation of (*a*) crevasses, (*b*) eskers.

10 Give a full account of observations made during a class excursion with your teacher, touching on at least *five* different geologic phenomena.

11 Mention the kinds of animals that existed in the Tertiary as indicated by fossil remains.

12 Describe the rocks of the Trenton period as to (*a*) kind, (*b*) geographic distribution.

13 State in what formations *each* of the following is found: graptolites, protozoans, lycopods, sponges, cephalopods.

14 Give an account of the first indications of the existence of man.

15 Mention, in connection with *each* of the following, *two* counties in New York State in which it occurs: petroleum, salt bed, glass sand, graphite, hydraulic limestone.

High School Department

182D EXAMINATION

GEOLOGY

Friday, June 17, 1904 — 1.15 to 4.15 p. m., **only**

Answer 10 questions but* no more.** ***If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1 Define *five* of the following: strike, talus, monocline, graptolite, loess, lamination, laccolith.

2 Describe *four* kinds of calcareous rock.

3 Make a drawing showing the structure of (*a*) a fault, (*b*) a section of a decapitated fold. Explain the formation of each.

4 Describe sea bottom deposits as to (*a*) origin, (*b*) nature.

5 Mention the agents of weathering. Describe the effects of weathering.

6 Describe the formation of (*a*) soil, (*b*) peat-beds.

7 Give the characteristics of (*a*) anthracite coal, (*b*) cannel coal.

8 Give *two* reasons why aquatic organisms were the principal contributors to fossiliferous formations.

9 Account for the formation of (*a*) kettle-holes, (*b*) rock-salt beds.

10 Give *two* examples of new formations that result from the decomposition of rock due to the action of air and water. Explain.

11 Give a full account of observations made during a class excursion with your teacher, illustrating (*a*) physiographic geology, (*b*) structural geology.

12 Describe the animal life of the Devonian era.

13 Describe the rocks of the Tertiary era as to (*a*) kind, (*b*) distribution.

14 State the conditions necessary for an artesian well. Illustrate by a drawing.

15 Give (*a*) the principal cause of the extinction of species, (*b*) examples of extinction of species in modern times.

High School Department

179TH EXAMINATION

PHYSICAL GEOGRAPHY

Thursday, October 1, 1903 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: solstice, moraine, convection, anemometer, stalactite, aphelion, meteor.

2 State the nebular hypothesis.

3 Describe the aneroid barometer. How may a barometer be used to measure hights of mountains?

4 Describe the predominant mountain system of South America and state its effect on the climate of that country.

5 Describe the whirls of the westerly winds.

6 What features of the constant currents are common to each of the three central oceans?

7 Describe the formation of (*a*) sargasso seas, (*b*) fluviatile lakes.

8 Compare the fertility of the plains of China with the fertility of the highlands of Thibet in the same latitude. Explain.

9 Assume that an area of low barometer is moving across the United States; state the probable weather conditions that will prevail along its course.

10 Describe the climatic conditions that prevail in the zone of equatorial calms.

11 State the conditions necessary to the growth of coral islands.

12 Describe the drainage systems of the central plain of North America.

13 Account for the influence on climate exerted by the Sierra Nevada mountains.

14 Describe *two* forms of volcanic cones and explain how each form is produced.

15 Show the relation between the industries of the people and the physiographic conditions in (*a*) Norway, (*b*) Porto Rico.

High School Department

[illegible] EXAMINATION

PHYSICAL GEOGRAPHY

Friday, October [illegible] — [illegible] to 4.15 p. m. only

Answer 10 questions but no more. If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. A complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1 Construct a diagram to illustrate the change of seasons, showing the relative position of the earth and the sun at the time of the solstices.

2 Describe the predominant monsoon system of Asia and discuss its influence on climate.

3 Distinguish between physical climate and astronomic climate. Mention the chief cause that tends to produce a regular decrease in temperature from the equator to the poles.

4 Why does the position of the isothermal of 50° north vary in latitude on opposite sides of the Atlantic?

5 Account for the small amount of rain on the western coast of South America between parallels of 23° and 27° south.

6 Describe the weather conditions in the zone of the polar winds in (*a*) winter, (*b*) summer.

7 Give the relative size of the several oceanic areas.

8 Describe a tropical cyclone as to (*a*) cause, (*b*) motions.

9 Describe a geyser. Mention *two* extensive geyser regions.

10 Describe (*a*) the origin of fiords, (*b*) the formation of deltas.

11 Give the life-history of a river valley.

12 Mention *two* classes of glacial drift deposits and describe each class.

13 What is meant by (*a*) magnetic declination, (*b*) eye of the storm?

14 Describe the physiographic conditions that make the Philippine islands valuable.

15 Show the relation between the physiography and the leading industries of the New England states.

High School Department

180TH EXAMINATION

PHYSICAL GEOGRAPHY

Thursday, January 28, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Construct a diagram to illustrate the change of seasons, showing the relative position of the earth and sun at the time of the equinoxes.

2 State in regard to the water masses of the earth (*a*) distribution, (*b*) relative size.

3 Explain the construction and the action of a thermometer. How do the Fahrenheit and Centigrade thermometer scales differ?

4 State in regard to the trade winds (*a*) between what parallels of latitude they blow, (*b*) direction, (*c*) effect on the windward side of mountain slopes.

5 State with reference to the winter storms of the United States (*a*) origin, (*b*) course of movement across the United States.

6 Describe the rainfall of (*a*) the zone of trades, (*b*) the zone of calms.

7 State in regard to spring tides (*a*) conditions under which they occur, (*b*) frequency of occurrence.

8 Compare the coast line of Europe with the coast line of North America as to indentations. Which is more favorable to commerce? Why?

9 Classify plains according to position and characterize each class.

10 Describe *two* types of glaciers and give an example of each type.

11 Describe (*a*) block mountains, (*b*) folded mountains. Give an example of each kind.

12 Give a full account of observations of a physiographic nature made during a class excursion with your teacher, dwelling on at least *five* different phenomena.

13 Why are the western coasts of continents in the southern hemisphere colder and the eastern coasts warmer than the latitudes would naturally indicate?

14 State the influence of latitude on plant life. Illustrate.

15 Mention *five* extensive regions that are not habitable and give physiographic reasons for such condition.

Or

Submit *either* a weather map made, during the term, under the direction of the teacher from data provided *or* a local weather chart made from personal observations.

High School Department

181ST EXAMINATION

PHYSICAL GEOGRAPHY

Thursday, March 24, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Construct a diagram showing the relative position of the earth and sun at the time of the solstices.

2 Mention *five* proofs of the rotundity of the earth.

3 Trace the course of annual isothermal line 50° north across the globe and account for its deviation from parallels of latitude.

4 Account for the formation of drops of moisture during a hot sultry day on the outside of a pitcher containing iced water.

5 Describe a Chinese typhoon as to (*a*) cause, (*b*) time of occurrence, (*c*) kinds of motion.

6 State the effect of the rotation of the earth on the direction of the wind in the southern hemisphere. Explain.

7 Compare the climate of the Faroe islands with the climate of Moscow, Russia. Explain.

8 State in regard to neap tides (*a*) conditions under which they occur, (*b*) frequency of occurrence.

9 Trace the course of the Kuroshiwo (Japan current) and state its effect on climate.

10 Mention *two* great types of islands classified with reference to situation. Give examples of each type mentioned.

11 Give the characteristics of (*a*) the upper course of rivers, (*b*) the lower course of rivers.

12 State the cause of the formation of (*a*) a rainbow, (*b*) a mirage.

13 Describe *five* principal navigable rivers of the United States and discuss in detail their influence on material prosperity.

14 Discuss the influence on the distribution of animal life of (*a*) latitude, (*b*) physiographic barriers. Give illustrations.

15 Mention *five* marked cases illustrating man's skill in overcoming adverse physiographic conditions for the purpose of promoting material progress.

Or

Submit, with explanation, *either* a weather map made (not copied) during the term, under the direction of the teacher from data provided *or* a local weather chart made from personal observations.

High School Department

182D EXAMINATION

PHYSICAL GEOGRAPHY

Thursday, June 16, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: equinox, ecliptic, weathering, aphelion, refraction, anemometer, isobar.

2 Where does a degree of latitude have the greatest length? Why?

3 Give the cause of (*a*) coronas, (*b*) the blue color of the sky.

4 What is meant by point of saturation of the atmosphere? Distinguish between actual humidity and relative humidity.

5 Describe the great low plain of North America as to (*a*) location and extent, (*b*) topography, (*c*) drainage, (*d*) adaptation to human life.

6 Trace the course of isotherm 30° north across the globe and account for its deviation from parallels of latitude.

7 Describe the formation of (*a*) cascades, (*b*) barrier reefs.

8 Why is continental land warmer in summer and colder in winter than oceanic islands in the same latitude?

9 Describe the Gulf Stream as to (*a*) course, (*b*) rapidity of movement, (*c*) width, (*d*) effects.

10 Mention the characteristics of (*a*) a young river, (*b*) a mature river. Give an example of each.

11 Describe the origin and development of a delta. Mention noted deltas.

12 Give a full account of observations of a physiographic nature made during a class excursion with your teacher, dwelling on at least *five* different phenomena.

13 Mention the characteristics of *two* great regions of animal life and state how the life of each region is adapted to the physiographic conditions that prevail.

14 Account for the location of *five* large cities by explaining the physiographic conditions that determined and aided the growth of each.

15 Mention the functions of the weather bureau. State what you have learned from the study of weather maps and submit a weather map *or* a local weather chart made during the term.

High School Department

179TH EXAMINATION

BOTANY

Tuesday, September 29, 1903 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: carpel, glume, rhizome, protonema, cyme, microspore, stolon.

2 Compare the germination and early growth of the oak with the germination and early growth of the squash. Use drawings to illustrate.

3 Mention *four* kinds of subterranean stems and give an example of each kind mentioned.

4 Explain the influence of the terminal bud in determining the form of a tree. Give illustrations.

5 Mention *two* modes of estivation. Make a drawing showing the arrangement of parts in each mode mentioned.

6 What conditions are indispensable in order that assimilation may take place in plants?

7 Describe the inflorescence of *each* of the following: dentaria, toad-flax.

8 Mention *two* principal forms of the perianth and give an example of each form.

9 Draw a typical flower, designating each part.

10 Describe the physiologic changes that take place in leaves, causing the brilliant autumnal foliage.

11 Compare the morning-glory with the pea as to floral parts. Use drawings.

12 Make (*a*) a cross section of the flower of the elm, (*b*) a longitudinal section of the flower of the elm.

13 What is meant by alternation of generations? Illustrate from the life-history of moss.

14 State the principal characteristics of the following families: umbelliferae, leguminosae. Mention *two* plants of each family.

15 Give the geographic distribution of cereals.

High School Department

180TH EXAMINATION

BOTANY

Tuesday, January 26, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

A laboratory course previously approved by the inspector, with notebook certified by the principal, may receive 20 credits toward the examination, in which case only eight questions are to be answered.

1 Define *five* of the following: archegonium, caulicle, deciduous, endosperm, perigynous, stigma, thallus.

2 Describe the germination and early growth of the bean. Use drawings to illustrate at least *two* stages of its early growth.

3 Make a drawing of a winter horse-chestnut twig, showing (*a*) leaf scars, (*b*) flower scars, (*c*) buds, (*d*) lenticels.

4 Describe an experiment that you have observed to show in what part of the root of a seedling increase in length takes place.

5 Mention *three* kinds of underground stems and give an example of each kind mentioned.

6 Discuss the relation of leaf arrangement to branching.

7 Describe the flower of the morning-glory as to (*a*) kind of inflorescence, (*b*) corolla, (*c*) calyx, (*d*) stamens, (*e*) pistil.

8 Make (*a*) a cross section (diagram) of the strawberry blossom, (*b*) a longitudinal section of the strawberry blossom.

9 State the function of *each* of the following appendages of plants: silk of corn, spur of the violet, spathe of the jack-in-the-pulpit, anther of a flower, wings of the elm fruit.

10 Describe an experiment that you have performed to show that oxygen is consumed during the germination of seeds.

11 Describe the structure of a hypogynous flower. Illustrate by diagram.

12 Mention *two* special adaptations of flowers that seem to facilitate the visits of insects. Give examples.

13 Mention *two* principal divisions of angiosperms. Give (*a*) the leading characteristic of each division, (*b*) a plant family of each division.

14 Draw and describe a low form of plant life that you have examined with a compound microscope. Under what conditions and where did this low form of plant grow?

15 What is meant by ecological botany? Mention *five* topics that may be classified under ecological botany.

High School Department

182D EXAMINATION

BOTANY

Tuesday, June 14, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

A laboratory course previously approved by the inspector, with notebook certified by the principal, may receive 20 credits toward the examination, in which case only eight questions are to be answered.

1 Define *five* of the following: involucre, phyllotaxy, morphology, radicle, epiphyte, geotropism, oögonium.

2 Describe the germination and early growth of the pea, using drawings to illustrate at least *two* stages of its early growth.

3 State (*a*) why some roots have large storage of nourishment, (*b*) why many leaf-buds fail to develop.

4 Describe the structure of a complete flower. Illustrate by a drawing, designating parts.

5 Describe an experiment that you have performed to demonstrate longitudinal tissue tension in plants.

6 Mention *four* methods by which plants may be propagated.

7 State the functions of leaves and explain how their structure adapts them to fulfil their functions.

8 Suggest an experiment to demonstrate root-pressure in plants.

9 Make a drawing of the fruit of *each* of the following: elm, daisy, buttercup, dentaria, maple.

10 What is meant by proterandry? Explain the relation of proterandry to cross-pollination.

11 Make a drawing of (*a*) a cross-section (diagram) of a buttercup, (*b*) a longitudinal section of a buttercup.

12 Mention the characteristics of flowers that depend on the wind for pollination.

13 Describe the structure, method of reproduction and habits of *one* of the algae that you have studied.

14 Give the leading characteristics of monocotyledonous plants and mention *two* families of this class.

15 Describe the adaptations of xerophytic plants that enable them to endure long droughts.

High School Department

180TH EXAMINATION

ZOOLOGY

Wednesday, January 27, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

A laboratory course previously approved by the inspector, with notebook certified by the principal, may receive 20 credits toward the examination, in which case only eight questions are to be answered.

1 Define *five* of the following: assimilation, aeration, chrysalis, hemiptera, osmosis, oviparous, spiracle.

2 Make a drawing of a protozoan that you have studied while it was alive under the compound microscope. Describe its structure and mode of life.

3 Give the life history of the spider. State the order to which the spider belongs and give the specific characteristics of this order. Mention *one* allied form.

4 Give the life history of the butterfly. Use drawings to illustrate the different stages through which the butterfly passes in the course of its development.

5 Draw with its appendages the thorax of (*a*) the house-fly, (*b*) the beetle.

6 Compare the grasshopper with the beetle as to (*a*) wings, (*b*) legs, (*c*) organs of sight, (*d*) food, (*e*) metamorphosis.

7 Compare the moth with the honey-bee as to (*a*) wings, (*b*) legs, (*c*) number of body segments, (*d*) food, (*e*) development.

8 State with reference to *each* of the following (*a*) kind of food, (*b*) method of obtaining food: amoeba, vorticella, honey-bee, crayfish, turtle.

9 Compare the frog with the turtle as to (*a*) structure of feet, (*b*) spinal column, (*c*) heart, (*d*) development, (*e*) habitat.

10 From observations made in dissection, describe the organs of digestion of an earthworm. Use drawing.

11 From observations made in dissection, draw the brain of a fish, indicating each part.

12 Mention the specific characteristics that assign (*a*) the butterfly to its order, (*b*) the grasshopper to its order.

13 Mention the organ in the beetle that is (*a*) homologous to the proboscis of the moth, (*b*) analogous to the gills of the crayfish.

14 Explain how mimicry serves as a protection to animals. Give illustrations.

15 Explain the meaning of survival of the fittest. Give illustrations from the animal kingdom.

High School Department

182D EXAMINATION

ZOOLOGY

Wednesday, June 15, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

A laboratory course previously approved by the inspector, with notebook certified by the principal, may receive 20 credits toward the examination, in which case only eight questions are to be answered.

1 Define *five* of the following: imago, batrachia, ambulacrum, coleoptera, embryology, blastula, carapace.

2 Describe the life phenomena of the hydra as to (*a*) nutrition, (*b*) motion, (*c*) sensation, (*d*) reproduction.

3 Make a drawing of *each* of the following parts of the honeybee: (*a*) prothorax with appendages, (*b*) mesothorax with appendages, (*c*) metathorax with appendages.

4 Give the life history of (*a*) the grasshopper, (*b*) the butterfly.

5 Describe the head appendages of the lobster.

6 Compare the grasshopper with the moth as to (*a*) mouth parts, (*b*) characteristics of wings, (*c*) characteristics of legs, (*d*) habits.

7 From observations made in dissection, describe the principal organs of circulation of the fish.

8 State how *each* of the following is well adapted by structure to perform its function: proboscis of the butterfly, spinal column of the fish, gills of the fish, foot of the fly.

9 Mention *five* kinds of animal life found in your section and assign each to (*a*) its class, (*b*) its order.

10 Describe the digestive tract of the bird. Use a drawing designating each part.

11 Explain in detail how *each* of the following is well adapted by structure to its mode of life: frog, cat.

12 Describe the method of locomotion of *each* of the following: paramecium, starfish, earthworm, mussel, snake.

13 What is meant by (*a*) hibernation, (*b*) parasitism? Give examples in each case.

14 Trace the evolution of the digestive system by describing its phases as manifested in the vorticella, sponge, hydra, clam, beetle.

15 Using a drawing, describe *one* of the protozoans that you have studied objectively.

High School Department

179TH EXAMINATION

PHYSIOLOGY AND HYGIENE

Wednesday, September 30, 1903 — 1.15 to 4.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: trypsin, ileum, thorax, antiseptic, synovia, metabolism, ptomain.

2 Describe the spinal column. Explain how its structure is adapted to protect the brain and the spinal cord.

3 Mention *three* principal muscles of the upper limbs and state the special function of each.

4 Describe the structure and state the function of the mucous membrane.

5 State the chief use of carbohydrates to the body. Mention foods that contain carbohydrates.

6 State the effect of the continuous use of alcoholic drinks on muscular tissue. Explain.

7 What is meant by vasomotor regulation of the circulation?

8 Describe the process of digestion, absorption and assimilation of starchy food.

9 Mention the physical properties of blood. What changes occur when blood coagulates?

10 Describe the coverings of the brain.

11 State the functions of (*a*) the fifth pair of cranial nerves, (*b*) the ninth pair of cranial nerves.

12 State the effect of the use of alcoholic drinks on (*a*) respiration of cells, (*b*) the liver. Explain.

13 Describe the structure of the larynx.

14 State the functions of the different parts of the ear.

15 State (*a*) how bacteria enter the body, (*b*) how the body destroys bacteria.

University of the State of New York

High School Department

180TH EXAMINATION

PHYSIOLOGY AND HYGIENE

Wednesday, January 27, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but no more. If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1 Describe the physiologic process that takes place in the repair of broken bones.

2 Describe the structure of voluntary muscles. Use drawing to illustrate.

3 State the function of *each* of the following: papillae, tendons, cuticle, sebaceous glands.

4 Compare animal food with vegetable food as to (*a*) digestibility, (*b*) amount of energy furnished. Illustrate.

5 Mention *two* chief causes of decay of teeth. Give directions for the care and preservation of the teeth.

6 Describe the absorption and assimilation of glucose.

7 State the temporary and the ultimate effect of large doses of alcoholic drink on the arteries.

8 Describe the pulmonary (lesser) circulation.

9 Why does the habitual use of tobacco (*a*) weaken the voice, (*b*) affect the action of the pulse?

10 Describe (*a*) the movements of breathing, (*b*) the effects of respiration on the blood.

11 Describe the arrangement of the white and gray matter in (*a*) the cerebellum, (*b*) the medulla.

12 Give directions for the care of (*a*) scalds, (*b*) frost-bites.

13 Describe *each* of the following: the cornea, the vitreous humor, the cochlea, the ear-bones. State the function of each.

14 State the origin and the danger of sewer-gas. What precautions should be taken to prevent the entrance of sewer-gas into a house?

15 Suggest an experiment to demonstrate the presence of starch in a food.

High School Department

181ST EXAMINATION

PHYSIOLOGY AND HYGIENE

Wednesday, March 23, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits Papers entitled to 75 or more credits will be accepted.*

1 Describe the structure and state the properties of the cell.

2 Mention a function of *each* of the following: medulla oblongata, white corpuscles, liver, periosteum, semilunar valves.

3 Discuss the value of *each* of the following as protection to the body from cold: linen, cotton, woolen, silk, fur.

4 Describe the structure of each kind of flexible (perfect) joint. Give an example of each kind.

5 State how and why digestion is influenced by *each* of the following: overeating, insufficient mastication, unusual excitement, great fatigue.

6 Describe each kind of teeth in the permanent set as to (*a*) number, (*b*) name, (*c*) relative position in the mouth.

7 State the effect of habitual use of alcoholic drinks on (*a*) the gastric juice, (*b*) the condition of the mouth.

8 Mention *two* ferments of the gastric juice and state the effect of each ferment on food.

9 Make a diagram of the digestive system, indicating the relative positions of the stomach, small intestine, large intestine, liver, gall-bladder.

10 Trace the circulation of the blood through the body, beginning at the lungs.

11 Describe the structure of (*a*) the thorax, (*b*) the lungs.

12 Describe the structure and state the functions of the spinal cord.

13 State the effect of (*a*) moderate use of tea and coffee, (*b*) excessive use of tea and coffee.

14 Mention at least *four* precautions that should be taken to preserve the sight unimpaired.

15 Suggest an experiment to prove the presence of nitrogenous matter in food.

University of the State of New York

High School Department

182D EXAMINATION

PHYSIOLOGY AND HYGIENE

Wednesday, June 15, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: chyme, diaphragm, sanitation, oxidation, pepsin, tympanum, ligament.

2 Mention (*a*) the bones of the lower leg, (*b*) the bones of the forearm.

3 State the effects of (*a*) a hot bath, (*b*) a cold bath. Discuss the time and manner of bathing.

4 Describe the salivary glands as to structure, function, number and location.

5 Give the process of the digestion, absorption and assimilation of albumin.

6 State the effect of strong alcoholic drink on (*a*) moisture in the tissues, (*b*) oxygen in the tissues.

7 Make a diagram of the digestive system, indicating the position of each organ.

8 State with reference to the blood (*a*) composition, (*b*) functions, (*c*) amount in an average human body.

9 Describe the origin and development of the lymphatics.

10 State the physiologic effect of *each* of the following in (*a*) small doses, (*b*) large doses: cocain, chloroform.

11 Mention the chief divisions of the brain. Describe the structure of each division mentioned.

12 What is meant by reflex action? Give illustrations.

13 What is meant by short-sightedness? Indicate by a diagram the form of a short-sighted eye.

14 Give directions for the immediate treatment of (*a*) a sunstroke, (*b*) a burn.

15 Suggest an experiment to show that there is (*a*) mineral matter in bone, (*b*) animal matter in bone.

High School Department

180TH EXAMINATION

GEOGRAPHY

Thursday, January 28, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *each* of the following and give the name and location of a particular example of each: river system, desert, strait, geyser, cañon (canyon).

2 Give the location of (*a*) the tropic of Cancer, (*b*) the Arctic circle. On what does the location of these lines depend?

3 Mention a city of New York State situated on (*a*) the Black river, (*b*) the Allegheny river, (*c*) the Genesee river, (*d*) the Susquehanna river, (*e*) the Mohawk river. Give *one* important fact concerning each city mentioned.

4 Write a short account of *one* of the following: production of salt in western New York, the electric power plant at Niagara Falls, the Brooklyn bridge.

5 Give the location of an extensive dry region in (*a*) Asia, (*b*) the United States. Account for the lack of rain in *one* of them.

6 Give the name and the location in the United States of *each* of the following: *two* seaports on the Atlantic coast south of the latitude of New York, *one* seaport on the Gulf of Mexico, *two* seaports on the Pacific coast.

7 Write an account of *one* of the following: oyster industry in Maryland, lumbering in Maine, seal fisheries of Alaska.

8 What and where is *each* of the following: Yukon, Toronto, Sierra Madre, Golden Gate, Yucatan?

9 Give the name and location of each of *five* countries of South America and mention *one* important product of each.

10 Mention a body of water separating (*a*) England from France, (*b*) Sweden from the German Empire, (*c*) Italy from Austria, (*d*) Greece from Asiatic Turkey.

11 Mention in order the countries of Europe bordering on France and state the form of government of each.

12 Mention *three* native wild animals found in Australia and describe *one* of them, touching on (*a*) food, (*b*) habits, (*c*) benefits or injuries to man.

13 Mention in order *four* countries of Africa bordering on the Mediterranean sea. State *two* important exports of *one* of the countries mentioned.

14 State where *each* of the following is produced and give a seaport from which each is exported in large quantities: tea, sugar, tobacco, coffee, hemp.

15 Describe *one* of the following, touching on (*a*) race, (*b*) houses, (*c*) occupations, (*d*) peculiar customs: Lapps of Lapland, natives of Alaska, Japanese.

High School Department

181ST EXAMINATION

GEOGRAPHY

Thursday, March 24, 1904 — 1 15 to 4.15 p. m., **only**

***Answer 10 questions but* no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *each* of the following and give the location of a particular example of each: isthmus, gulf, volcano, cape, llano.

2 Mention the circle on the earth's surface on which the rays of the sun are vertical (*a*) March 22, (*b*) June 21. Explain by aid of a diagram.

3 Give the location of *each* of the following cities in New York: Auburn, Plattsburg, Utica, Elmira, Middletown. Mention *one* important fact concerning each city mentioned.

4 State the water course by which the drainage of *each* of the following counties reaches the ocean: Cayuga, Tioga, Erie, Montgomery, Delaware.

5 Define standard time. When it is 12 o'clock noon by standard time in New York city, what time is it by standard time in (*a*) St Louis, (*b*) San Francisco?

6 Mention a state that bounds (*a*) Pennsylvania on the south, (*b*) Georgia on the north, (*c*) Missouri on the west, (*d*) Utah on the east, (*e*) Idaho on the west.

7 Give an account of the climate of southern California. Mention the important productions of southern California.

8 Write an account of *one* of the following: cod-fishing on the banks of Newfoundland, the petroleum industry in the United States, rice culture in South Carolina.

9 What and where is *each* of the following: St Elias, Vera Cruz, Mackenzie, Colon, Porto Rico?

10 Give the name and the location in South America of (*a*) *one* mountain range, (*b*) *two* rivers, (*c*) *two* cities.

11 Mention *five* important seaports of Europe, other than those of Great Britain, and state the country in which each is situated.

12 Give the name and location of *five* seas that indent the coast of Asia.

13 Give the location of *each* of the following and mention *one* important fact in regard to each: Korea, Liberia, Luzon, Sahara, Tokio.

14 State *one* locality where *each* of the following is produced and mention a seaport from which each is exported in large quantities: cotton, rubber, bananas, spices, dates.

15 Mention *three* native wild animals of Alaska and describe *one* of them, touching on (*a*) food, (*b*) habits, (*c*) use or danger to man.

High School Department

182D EXAMINATION

GEOGRAPHY

Thursday, June 16, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *each* of the following and give the location of a particular example of each: bay, mountain-chain, volcanic island, cataract, steppe.

2 Show by aid of a diagram why a degree of longitude at the equator and a degree of longitude at the tropic of cancer differ in length.

3 State approximately (*a*) the distance from Buffalo to Rochester, (*b*) the distance from Albany to New York city, (*c*) the area of New York state, (*d*) the population of New York state.

4 Describe *one* of the following: Niagara gorge, Adirondack park, New York harbor.

5 Give the location and mention *one* leading manufactured product of *each* of the following cities of New York state: Syracuse, Jamestown, Troy, Binghamton, Yonkers.

6 Mention in order the states that are bounded on the east, wholly or in part, by the Mississippi river.

7 Write an account of *one* of the following: sheep-herding in Wyoming, hydraulic mining, cotton-growing in Texas.

8 Give the location of *each* of the following and state *one* important fact regarding each: San Domingo, Quebec, Galveston, Bermuda islands, Honolulu.

9 Mention *three* countries, *two* volcanoes, *two* rivers and *three* cities in South America. Give the location of each.

10 Describe *each* of the following rivers: Danube, Rhine, Volga.

11 Mention an important article of export from (*a*) England, (*b*) France, (*c*) Sweden, (*d*) the German Empire, (*e*) Italy.

12 Mention *four* European nations that have possessions in Africa and give the name and location in Africa of *one* possession of each.

13 What and where is *each* of the following: Melbourne, Himalaya, Port Arthur, Calcutta, Guam?

14 Mention *five* native wild animals of South America and describe *one* of them, touching on (*a*) food, (*b*) habits, (*c*) benefits or injuries to man.

15 Describe the Japanese islands, touching on (*a*) location, (*b*) climate, (*c*) principal products, (*d*) character of people.

High School Department

180TH EXAMINATION

GREEK HISTORY

[*With a short survey of ancient oriental nations*]

Tuesday, January 26, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Write on *one* of the following: (*a*) the capitals of ancient Egypt, (*b*) the Hebrews in Egypt.

2 Give an account of the reign of Psammetichus and show why it was of special historic importance.

3 Mention *three* important Assyrian conquests. Describe a method by which Assyrian rulers tried to hold conquered territory.

4 Give an account of Tyre, touching on (*a*) location, (*b*) commerce, (*c*) influence, (*d*) destruction (332 B. C.).

5 Mention *five* noted Greek cities and give the location of each. Connect with each city mentioned an important event or person.

6 Describe the government of the Spartans, touching on (*a*) kings, (*b*) senate, (*c*) assembly, (*d*) ephors.

7 Give an account of the rebellion of Cylon, covering (*a*) causes, (*b*) results.

8 Describe the reforms introduced by Solon to relieve the Athenian poor.

9 Explain the circumstances that favored the establishment of a tyranny at Athens. Why were the tyrannies in Greek cities short-lived?

10 State facts that seem to show that Athens deserved more credit than Sparta for the defeat of the Persian invasions.

11 State the general provisions of the Thirty Years Truce. Show how this truce marked a change in the plans of Pericles.

12 Compare Athens and Sparta at the beginning of the Peloponnesian War, touching on (*a*) military strength, (*b*) naval strength, (*c*) financial resources, (*d*) allies.

13 Give a summary of the conquests of Alexander the Great.

14 Give an account of the kingdom of the Ptolemies, touching on (*a*) origin, (*b*) capital, (*c*) commerce, (*d*) intellectual influence.

15 Draw a map of the Acropolis and its environs, showing the location of (*a*) the Propylaea, (*b*) the Parthenon, (*c*) the Erechtheum, (*d*) the theater of Dionysius, (*e*) the Areopagus.

Or

Draw a map of the fortifications of Athens.

High School Department

182D EXAMINATION

GREEK HISTORY

[*With a short survey of ancient oriental nations*]

Tuesday, June 14, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Give an account of the Egyptian priests, touching on (*a*) duties, (*b*) privileges, (*c*) education.

2 Give *two* reasons to explain the following: "Phenicia had also a position, geographically, . . . which favored her rise to importance."

3 Describe the organization of the Persian Empire, touching on (*a*) relations of the conquered nations to Persia, (*b*) satraps, (*c*) post-roads, (*d*) special officers of the king.

4 Give *two* reasons why civilization developed more readily on the eastern than on the western coast of Greece.

5 Mention (*a*) *three* of the labors of Heracles, (*b*) *two* virtues personified in Heracles. Give a reason for thinking that the Heracles myth did not originate with the Greeks.

6 Write on *one* of the following: (*a*) the founding of a Greek colony, (*b*) the doctrine of the divine jealousy.

7 Mention and explain *one* reform made by *each* of the following: (*a*) Draco, (*b*) Cleisthenes.

8 Give an account of the battle of Marathon, touching on (*a*) leaders, (*b*) size of each army, (*c*) bravery displayed by the Greeks, (*d*) results.

9 Show how the Greek cities of Asia Minor and the Aegean, after the Persian invasions, were freed from Persian rule.

10 Show by what means Pericles (*a*) increased the political power of poor citizens, (*b*) encouraged art.

11 Give a somewhat detailed account of the conduct of Alcibiades in the Peloponnesian War.

12 Show how Sparta, after the Peloponnesian War, attempted to control other Grecian states, and mention *two* important results of Sparta's policy.

13 Explain why the supremacy of Thebes failed to strengthen Greece.

14 Give an account of slavery as it existed in Greece, covering (*a*) prevalence, (*b*) treatment of slaves in Laconia and in Attica, (*c*) resulting dangers, (*d*) resulting benefits.

15 State *three* particulars in which the Greek theater differed from the modern American theater.

High School Department

179TH EXAMINATION

ROMAN HISTORY

Tuesday, September 29, 1903—1.15 to 4.15 p. m., **only**

***Answer 10 questions but* no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Give an account of the Etruscans, touching on (*a*) territory, (*b*) cities, (*c*) occupations, (*d*) influence on the early Romans.

2 Write biographic notes on *five* of the following: Camillus, Cincinnatus, Coriolanus, Caius Licinius Stolo, Marcus Manlius, Numa Pompilius, Lars Porsena.

3 Relate the story of Regulus.

4 Give an account of the extension of the Carthaginian power in Spain and state results.

5 Show how the Greeks came to exert great influence on the Romans. Mention good and ill effects that contact with the Greeks had on the Romans.

6 Give an account of Jugurtha's visit to Rome and show what this visit revealed in regard to the Roman government.

7 Describe the military career by which Marius won political favor.

8 Compare Julius Caesar's achievements in Britain with his achievements in Gaul, touching on (*a*) thoroughness, (*b*) permanent results.

9 Relate the circumstances that led to the battle of Philippi. State important results of this battle.

10 Give an account of the great fire that occurred in Rome in Nero's reign and state results.

11 Describe the destruction of Pompeii and Herculaneum and show why this event is important to the historian.

12 State why the capital of the Roman Empire was removed to Constantinople.

13 Give a summary of the important conquests of Mohammedanism in the first century of its existence.

14 Mention the contending parties in *each* of the following battles and state an important result of each battle: (*a*) Tours, (*b*) Soissons.

15 Give an account of the disagreement that arose between the Papacy and the Eastern Empire in regard to (*a*) the use of images, (*b*) the rule of Irene. State important consequences.

High School Department

180TH EXAMINATION

ROMAN HISTORY

Monday, January 25, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Show how the position of Rome in the Italian peninsula was unfavorable to commerce with the eastern Mediterranean.

2 State in regard to the early history of Rome a probable fact relating to (*a*) the purpose of its settlement by the Latins, (*b*) the origin of the three tribes (Ramnes, Tities, Luceres), (*c*) the services of the Etruscan kings.

3 Give a summary of the steps by which the plebeians gained political equality.

Or

State *four* important rights of full Roman citizenship.

4 Show why Roman history previous to 390 B. C. is largely traditional.

5 Relate the circumstances that led to the battle of Metaurus. Show the importance of this battle in Roman history.

6 State briefly how Rome gained control of *each* of the following provinces: (*a*) Africa, (*b*) Cisalpine Gaul, (*c*) Hither Spain, (*d*) Macedonia, (*e*) Sicily.

7 Explain how a new nobility grew up after the plebeians had gained equal rights with the patricians.

8 Give an account of the government of a province under the Roman Republic, touching on (*a*) chief executive officer, (*b*) administration of justice, (*c*) collection of taxes.

9 Give an account of the Social War, touching on (*a*) demands of the allies, (*b*) murder of Drusus, (*c*) results.

10 Mention and explain *two* important political reforms made by Julius Caesar.

11 State the circumstances that favored the growth of literature in the reign of Augustus. Mention *three* noted authors of the Augustan era.

12 Give an account of the reign of Vespasian, touching on (*a*) character of the emperor, (*b*) the war in Judea and its results, (*c*) public improvements.

13 Relate the circumstances of the sale of the Empire (193 A. D.) and state results.

14 Describe Diocletian's reorganization of the imperial government. Show why this reorganization (*a*) was needed, (*b*) brought great burdens on the people.

15 Show how the Teutonic invaders of the Roman Empire were benefited by association with the conquered population.

High School Department

182D EXAMINATION

ROMAN HISTORY

Monday, June 13, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Mention in regard to the Greeks in Italy (*a*) *two* important settlements, (*b*) the portion of Italy occupied. Show how the Greek settlements in Italy benefited the Romans.

2 Give an account of *two* dangers that threatened the Roman Republic in the first century of its existence.

3 State in regard to the consuls (*a*) mode of election, (*b*) *two* important powers. How did a dictator differ from a consul? Why were dictators sometimes appointed?

4 State in connection with the First Punic War (*a*) the real cause, (*b*) the occasion. What did the Romans learn from the enemy in this war?

5 Sketch the life of Hannibal, touching on (*a*) youth and military education, (*b*) success as a general, (*c*) final defeat, (*d*) death.

6 Give an account of the Illyrian War, covering (*a*) cause, (*b*) important results.

7 Give a summary of the internal disorders that vexed Italy during the last century of the Republic.

8 Show why Pompey after the last Mithridatic war was displeased with the senatorial party. State results of Pompey's displeasure.

9 State in regard to the final disagreement between Octavius and Antony (*a*) the causes, (*b*) *three* important results.

10 State facts that show the truth of the following assertion in regard to the Roman forum: "The forum . . . was the natural center of political, commercial, and religious life."

11 Give an account of the reign of Trajan, touching on (*a*) conquests, (*b*) literary activity, (*c*) memorials.

12 Show in regard to Constantine the Great how he (*a*) won the Empire, (*b*) encouraged the church.

13 Give an account of (*a*) the division of the Empire on the death of Theodosius, (*b*) the defense of the Western Empire by Stilicho.

14 Write on *one* of the following: (*a*) the establishment of the kingdom of Visigoths in Spain, (*b*) the work of Clovis.

15 Describe *one* of the following: (*a*) a Roman funeral, (*b*) a Roman house.

University of the State of New York

High School Department

179TH EXAMINATION

ENGLISH HISTORY

Thursday, October 1, 1903 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 State what portions of England and Wales are generally (*a*) mountainous, (*b*) best adapted to agriculture, (*c*) most productive of mineral wealth.

2 Show how the Roman occupation of Britain (*a*) increased the productiveness of the land, (*b*) affected the native Britons.

3 Give a brief account of the life of Egbert, touching on (*a*) exile, (*b*) rule.

4 Give an account of the government of the Anglo-Saxons, touching on (*a*) king, (*b*) witan, (*c*) the political divisions into shires, hundreds etc., (*d*) duties of the freemen.

5 State *three* facts to show that William I was a wise ruler.

6 Show by what means many of the towns and cities of England secured the right to govern themselves.

7 Give an account of the overthrow of the papal power in England.

8 Write on *one* of the following topics relating to the Tudor period: (*a*) explorations and growth of commerce, (*b*) industrial changes.

9 Write on *two* of the following: (*a*) the character of James I, (*b*) the Hampton Court Conference, (*c*) the fate of Sir Walter Raleigh.

10 Explain in regard to the Long Parliament (*a*) why it was summoned, (*b*) what action it took against the king's advisers.

11 Write on *one* of the following: (*a*) the origin of the names Whig and Tory, (*b*) the Bloody Assizes, (*c*) the trial of the seven bishops.

12 Mention *three* important events of the reign of William and Mary. Give an account of *one* event mentioned.

13 Define cabinet government. In whose reign did cabinet government become firmly established? Give reasons.

14 Relate important circumstances that led Great Britain to adopt a free trade policy.

15 Mention *two* important measures advocated by William E. Gladstone. Explain *one* of the measures mentioned.

High School Department

179TH EXAMINATION

ENGLISH HISTORY

Friday, October 2, 1903—1.15 to 4.15 p. m., only

Answer 10 questions but* no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1 Show how the mineral wealth of Great Britain has contributed largely to its commercial importance.

2 Draw a map of Great Britain and on it locate, with name, (*a*) the Wall of Antonine, (*b*) the Wall of Hadrian, (*c*) the Fosse-way, (*d*) Watling street.

3 Explain why the Anglo-Saxon tribes (*a*) first came to Britain, (*b*) remained in Britain.

4 Give an account of Alfred's conflicts with the Danes and state results.

5 Mention the sons of William 1 and give a brief account of the life of each after the death of William 1.

6 Mention *three* important events in the reign of John and show why each was important.

7 Explain the decrease of parliamentary power that occurred in the Tudor period.

8 State in detail the causes of the war with Spain in Elizabeth's reign.

9 Mention *two* chief features of the policy of Charles 1 that were offensive to the English people.

10 Give an account of *one* of the following: (*a*) the New Model and its successes, (*b*) the dissolution of the Long Parliament.

11 Give *three* important provisions of the Bill of Rights.

12 Show how England became involved in the War of the Spanish Succession.

13 Give an account of the services of William Pitt (the elder).

14 Write on *one* of the following: (*a*) great authors of the reign of George 3, (*b*) the industrial revolution of the latter part of the 18th century.

15 Give the reason for England's desire to maintain the Turkish Empire in Europe. Mention *two* notable events of Victoria's reign that show England's disposition toward Turkey.

High School Department

180TH EXAMINATION

ENGLISH HISTORY

Thursday, January 28, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Show how the position of the British Isles has been favorable to (*a*) their industrial and commercial growth, (*b*) the intellectual progress of the English people.

2 State *five* facts in regard to the Celtic inhabitants of Britain when they first became known to the Romans.

3 Give reasons why the Teutonic tribes that invaded Britain united to form Anglo-Saxon England.

4 Define or explain *five* of the following: *burgh*, *ceorl*, *Danelagh*, *ealdorman*, *folkland*, *fyrd*, *hundred*, *nithing*, *wergild*.

5 State somewhat in detail the results of the Danish settlements in England.

6 Mention *two* evil practices referred to in the following statement: "And I from this time do away with all the *evil practices*, by which the kingdom of England is now unjustly oppressed.—" Henry 1, Charter of Liberties

7 Compare Alfred the Great and Edward 1 as (*a*) warriors, (*b*) lawgivers.

8 Give *two* reasons for the increase of royal power during the Tudor period.

9 Give an account of the attempts to settle Virginia during Elizabeth's reign.

10 Summarize the causes of the revolution that dethroned Charles 1.

11 Show why the threatened union of France and Spain in Anne's reign was dangerous to England's colonial interests.

12 Mention *five* important events of English history that occurred between the close of the American Revolution and the accession of Queen Victoria. Give a reason for the importance of each event mentioned.

13 Give an account of Australia, touching on (*a*) discovery, (*b*) early settlements, (*c*) mineral wealth, (*d*) principal cities, (*e*) government.

14 Mention *two* important events with which Benjamin Disraeli was notably connected. Give an account of *one* event mentioned.

15 Write on *one* of the following: (*a*) English control of Egypt, (*b*) arbitration between England and the United States, (*c*) England's free trade policy.

High School Department

181ST EXAMINATION

ENGLISH HISTORY

Thursday, March 24, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Show by map or otherwise why the situation of London has favored its commercial growth.

2 State in regard to Caesar's invasions of Britain (*a*) purpose, (*b*) immediate results, (*c*) a remote result.

3 State *two* particulars in which the Saxon invaders, in comparison with the conquered Britons, were (*a*) superior, (*b*) inferior.

4 Give a summary of the important events in the reign of William 1.

5 Mention *two* legal reforms made by Henry 2 and give an account of each.

6 Give an account of the disagreement between John and Pope Innocent 3, covering (*a*) cause, (*b*) measures used to compel obedience to the church, (*c*) results.

7 Relate the circumstances that led to the summoning of de Montfort's parliament. What important department of the English government originated in de Montfort's parliament?

8 Mention *two* important literary works that appeared in the Plantagenet period. Give a brief account of *one* work mentioned.

9 Define or explain (*a*) benevolences, (*b*) Lollard, (*c*) mortmain, (*d*) purveyance, (*e*) scutage.

10 Mention the Tudor sovereigns of England and connect an important event with the reign of each.

11 Show how the English people were embittered against Charles 1 by the policy of (*a*) Wentworth, (*b*) Laud.

12 State the principal causes of the French Revolution (1789). Show how the French Revolution affected the cause of parliamentary reform in England.

13 Give an account of (*a*) the conditions of Irish agricultural tenants (1870) that called for reform, (*b*) *one* measure passed for the relief of Irish tenants.

14 Mention *two* countries in which the interests of England and Russia conflict. State in each case the nature of the peril to England.

15 Give an account of *two* of the following: (*a*) the Alabama claims, (*b*) the Australian federation, (*c*) the Venezuelan boundary dispute, (*d*) the Boxer uprising in China.

High School Department

182D EXAMINATION

ENGLISH HISTORY

Thursday, June 16, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Compare the Britons at the time of the Roman Conquest with the North American Indians of early colonial times, noting *three* points of resemblance or difference.

2 Mention and describe the principal traces of Roman occupation found in the soil of England.

3 Give an account of Saxon life, touching on (*a*) principal occupations, (*b*) the Saxon *tun*, (*c*) arts known to the Saxons.

4 Give a summary of the important steps by which the Teutonic tribes of invaders became an Anglo-Saxon nation.

5 Mention and describe an event that shows the weakness of the Anglo-Saxon kingdom in the reign of (*a*) Edward the Confessor, (*b*) Harold.

6 State *three* facts that seem to justify the following description of King John: "A knight without truth, a king without justice, a Christian without faith."

7 Write on *one* of the following topics connected with the Plantagenet period: (*a*) the establishment of a national literature, (*b*) industrial changes, (*c*) the growth of commerce.

8 Give *two* reasons why the reign of Henry 7 may be considered the beginning of a new epoch in English history.

9 Give an account of the destruction of the monasteries by Henry 8, touching on (*a*) causes, (*b*) important results.

10 Explain (*a*) the attitude of the Puritans at the beginning of the 17th century toward the Church of England, (*b*) why Puritan doctrines were displeasing to James 1.

11 Give an account of Cromwell's personal rule, touching on (*a*) dissolution of parliaments, (*b*) religious toleration, (*c*) raising of revenues, (*d*) foreign policy.

12 Relate the circumstances under which the House of Hanover came to the English throne. Mention the sovereigns who have ruled England since the accession of this house.

13 Give an account of the changes referred to in the following statement: "In modern times her minerals have made the fertility of the soil of secondary importance."

14 Give an account of the African slave trade, touching on (*a*) origin, (*b*) increase under the Treaty of Utrecht, (*c*) abolition.

15 Write on *one* of the following: (*a*) the Chartist demonstration (1848), (*b*) the elementary education act (1870).

High School Department

179TH EXAMINATION

ELEMENTARY UNITED STATES HISTORY AND CIVICS

Wednesday, September 30, 1903—9.15 a. m. to 12.15 p. m., only

---

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Mention an exploration that gave claim to territory in North America to (*a*) England, (*b*) France. Give an account of each exploration mentioned.

2 Describe *three* weapons or implements used by the Indians before America was settled by Europeans.

3 Mention *one* man prominently connected with the settlement of *each* of the following: (*a*) Plymouth, (*b*) Salem, (*c*) New Amsterdam, (*d*) Quebec, (*e*) St Augustine.

4 Write on *one* of the following: (*a*) Indian wars in New England, (*b*) aid given by the Iroquois to the English in New York.

5 Give an account of *one* of the following: (*a*) New York's resistance to the Stamp Act, (*b*) conflicts that arose in New York city from the attempt of the British government to quarter troops on the colony.

6 Give an account of *each* of the following and state an important result of each: (*a*) the Boston Tea-party, (*b*) the capture of Ticonderoga by Ethan Allen.

7 Write on *one* of the following: (*a*) Benjamin Franklin at the French court, (*b*) the services of John Paul Jones.

8 Mention *three* important events that occurred during Jefferson's administrations. Give an account of *one* event mentioned.

9 Mention the most important battle fought in New York State during the War of 1812. Give an account of this battle.

10 State in regard to the Kansas-Nebraska Bill (*a*) its principal provision, (*b*) the disorders that resulted from its passage.

11 Show the importance in the Civil War of *two* of the following: (*a*) the firing on Fort Sumter (1861), (*b*) The Trent Affair, (*c*) the capture of Mobile bay.

12 Mention *five* presidents who have served since the Civil War. Connect an important event with the administration of each.

13 State how and when Alaska was acquired. Mention *three* of the most valuable products of Alaska.

14 Describe the legislative branch of the United States government, touching on (*a*) divisions, (*b*) election of the members of each division, (*c*) presiding officer of each division.

15 Mention the branch of government, legislative, executive or judicial, which has charge of *each* of the following: (*a*) appointing judges of the Supreme Court, (*b*) raising an army, (*c*) commanding the army, (*d*) declaring war, (*e*) settling controversies between states.

High School Department

180TH EXAMINATION

ELEMENTARY UNITED STATES HISTORY AND CIVICS

Wednesday, January 27, 1904—9.15 a. m. to 12.15 p. m., **only**

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Relate *two* events in the life of Columbus that show his perseverance.

2 Mention territory in the new world over which dispute arose between (*a*) France and Spain, (*b*) England and Holland, (*c*) England and France, (*d*) Holland and Sweden. State results in each case.

3 Give an account of the first settlement made by Europeans in *three* of the following places: Albany, Borough of Manhattan, Brooklyn, Johnstown, Kingston, Oswego, Ogdensburg.

4 State in regard to the Quakers (*a*) why they were persecuted, (*b*) what colony they founded, (*c*) how they were governed as a colony.

5 State what was done in the 18th century to people who failed to pay their debts. Show how the laws against debtors brought many settlers to the American colonies.

6 Mention *five* tribes of the Iroquois in New York State. Show by map or otherwise the location of each tribe mentioned.

7 Relate the circumstances that led to the battle of (*a*) Lexington, (*b*) Bunker Hill.

8 Arrange in order of occurrence the following: (*a*) the battle of Saratoga, (*b*) the Declaration of Independence, (*c*) the evacuation of Boston by the British, (*d*) the battle of Princeton, (*e*) Greene's campaign in the south.

9 Mention and explain *two* benefits gained by the purchase of Louisiana.

10 Explain the meaning of slavery. Mention *five* states in which slavery existed in 1860.

11 Mention *three* additions to territory made by the United States since the Civil War. Show how each addition mentioned is valuable.

12 Describe an improvement made since the Civil War in (*a*) travel, (*b*) communication.

13 Define constitution. By whom are constitutions (*a*) drawn up, (*b*) adopted? What serves as a constitution in the case of a city?

14 Mention *two* duties of the president of the United States that must be performed with the advice and consent of the Senate.

15 Give an account of Lincoln's boyhood.

High School Department

181ST EXAMINATION

ELEMENTARY UNITED STATES HISTORY AND CIVICS

Wednesday, March 23, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Describe the weapons of the North American Indians before Europeans came.

2 Mention *three* noted English explorers who lived before 1600. Connect *one* important exploration or discovery with the name of each explorer mentioned.

3 Give an account of the rule of Peter Stuyvesant, touching on (*a*) character of the governor, (*b*) attempt of the settlers to secure a legislature, (*c*) overthrow.

4 Mention *two* fortifications erected by the French in the Champlain valley. Why was the possession of this valley important to the French?

5 Give an account of the life of Benjamin Franklin previous to the Revolution.

6 Explain what the colonists meant by the watchword "No taxation without representation."

7 Mention *two* important battles of the Revolution and show the importance of each.

8 Mention (*a*) the 13 original states, (*b*) *two* states admitted during Washington's administration.

9 Give an account of the Nullification Act of South Carolina (1832), touching on (*a*) cause, (*b*) results.

10 Mention *two* improvements in transportation and travel made in New York State between 1812 and 1840. Show how these improvements affected (*a*) New York city, (*b*) the western portions of the state.

11 Give an account of the settlement of California.

12 Explain why the Fugitive Slave Law (1850) was greatly disliked by the North.

13 Mention *two* important events in the administration of *each* of the following: (*a*) McKinley, (*b*) Roosevelt. Give an account of *one* of the events mentioned.

14 Show how a foreigner may become a citizen of the United States.

15 Mention the department of government that has charge of (*a*) levying taxes, (*b*) collecting taxes, (*c*) deciding disputes in regard to the meaning of the Constitution, (*d*) the army and navy, (*e*) making treaties.

High School Department

182D EXAMINATION

ELEMENTARY UNITED STATES HISTORY AND CIVICS

Wednesday, June 15, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Describe the routes by which goods were brought from Asia to Europe before Vasco da Gama made the voyage to India around Cape of Good Hope.

2 Give a brief account of a noted exploration of (*a*) Ponce de Leon, (*b*) Cartier.

3 Give an account of an exploration in New York State by (*a*) Hudson, (*b*) Champlain.

4 Show the importance in the French and Indian War of *each* of the following: (*a*) Louisburg, (*b*) Quebec, (*c*) Fort Duquesne.

5 Describe by drawing or otherwise *one* of the following: (*a*) a colonial Dutch mansion, (*b*) a colonial fireplace, (*c*) a colonial kitchen.

6 Define or explain *two* of the following: (*a*) the Stamp Act, (*b*) the Townshend Acts, (*c*) the Mutiny Act, (*d*) Writs of Assistance.

7 Mention *four* important cities in the colonies during the American Revolution. Which of the cities mentioned was (*a*) the largest, (*b*) the longest held by the British troops?

8 Give *three* reasons why Burgoyne was forced to surrender.

9 Explain what Washington meant by saying of the government of the United States (1783–1789), "We are one nation today, and thirteen tomorrow."

10 State *three* important powers given to Congress by the Constitution of the United States.

11 Mention the two houses of Congress. State in regard to the houses of Congress (*a*) how the members of each are chosen, (*b*) why *two* houses are better than one.

12 Mention *three* important events of Monroe's administration. Give an account of *one* event mentioned.

13 Mention *five* important events of the Civil War and show the importance of each.

14 Mention and explain an important result of the invention of *each* of the following: (*a*) the cotton-gin, (*b*) the sewing-machine, (*c*) the electric telegraph.

15 Show what additions of territory have been gained by the United States through conquest.

University of the State of New York

High School Department

179TH EXAMINATION

ADVANCED UNITED STATES HISTORY

Thursday, October 1, 1903—9.15 a. m. to 12.15 p. m., only

Answer eight questions but no more. *If more than eight are answered only the first eight answers will be considered. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 Give an account of the attempts of *one* of the following to plant colonies in the new world: (*a*) Raleigh, (*b*) Champlain. Show how the defeat of the Spanish Armada promoted colonization in North America.

2 Give an account of the Jamestown colony under the leadership of John Smith.

3 Give reasons why the colonial settlements of New York were confined almost wholly to the Hudson valley.

4 State the colonial industries generally pursued in (*a*) New England, (*b*) the middle colonies, (*c*) the southern colonies. What restrictions were placed by England on colonial trade?

5 Mention the principal military operations of the French and Indian War and show the influence of that war as a training for the Revolution.

6 State the nature of the Quebec Act (1774) and show why it was particularly obnoxious to the colonists.

7 Give an account of the American invasion of Canada (1775), touching on (*a*) purpose, (*b*) difficulties, (*c*) results.

8 Explain somewhat in detail the financial troubles that beset the government of the United States under the Articles of Confederation.

9 State the causes of the War of 1812. Explain the industrial changes in the New England and Middle states that resulted from the War of 1812.

10 Give a summary of the important acts and events (1800–1860) by which the area of slavery was increased.

11 State somewhat in detail *three* difficulties that have arisen in the South from the enfranchisement of the negroes.

12 For the year ending June 30, 1901, the United States government collected $587,685,338 in revenues. Give argument for or against the proposition that the inhabitants of this country ultimately pay these taxes.

High School Department

179TH EXAMINATION

ADVANCED UNITED STATES HISTORY

Friday, October 2, 1903—9.15 a. m. to 12.15 p. m., only

Answer eight questions but **no more.** *If more than eight are answered only the first eight answers will be considered. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 Give a summary of important explorations and settlements made in the new world from 1500–1600.

2 Write on *one* of the following: (*a*) mistakes made by the Dutch in colonizing New Amsterdam, (*b*) the Pilgrim and the Puritan settlers of Massachusetts.

3 State methods employed by the French to prevent English colonization west of the Alleghanies.

4 Compare the life of the people in colonial times with the life of the people at the present time, touching on (*a*) variety of occupations, (*b*) employment of machinery, (*c*) amusements, (*d*) travel and communication.

5 Give an account of the settlement of Pennsylvania, touching on (*a*) Penn's grants, (*b*) relations established with the Indians, (*c*) chief provisions of Penn's Charter of Privileges.

6 Show how the prevailing idea of representative government in England in the 18th century differed from the idea of representative government in America.

7 Explain the circumstances that justified the following charges against George 3 in the Declaration of Independence: (*a*) "He is at this time transporting large armies of foreign mercenaries to complete the works of death, desolation and tyranny," (*b*) "He . . . has endeavored to bring on the inhabitants of our frontiers the merciless Indian savages."

8 Mention the court established by the Constitution. State how other United States courts have been established.

9 State the difficulties encountered by Madison in prosecuting the War of 1812, touching on (*a*) military and naval deficiencies, (*b*) hostility of the Indians, (*c*) opposition of the New England states to the war.

10 State the nature of the dispute that arose regarding the admission of *each* of the following states: (*a*) Missouri, (*b*) California.

11 Trace in detail Lincoln's policy in regard to slavery from his election as president to the issuance of the Emancipation Proclamation.

12 From 1890–1900, according to the United States census, 3,687,564 immigrants came to the United States. State *three* important reasons that have caused these immigrants to seek homes in the United States. From what European country has the emigration to the United States of recent years been largest?

University of the State of New York

High School Department

180TH EXAMINATION

ADVANCED UNITED STATES HISTORY

Thursday, January 28, 1904—9.15 a. m. to 12.15 p. m., only

Answer eight questions but no more. *If more than eight are answered only the first eight answers will be considered. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 Give reasons (*a*) why Spain was at first more successful in colonizing the new world than other European nations, (*b*) why Spanish colonization failed to build strong states.

2 Mention *four* important cities of the United States that are located on the Great Lakes. State a common advantage possessed by these cities and give a special advantage possessed by each of *two* of them.

3 Trace the connection between the charter to the Virginia Company (1606) and the following resolution of the Stamp Act Congress: "That his majesty's liege subjects in these colonies are entitled to all the inherent rights and privileges of his natural born subjects within the kingdom of Great Britain."

Or

Show how the colonists of Virginia first secured representative government.

4 Give an account of the disorder that resulted in New York from the deposition of James 2.

5 Give an account of the French alliance (1778), touching on (*a*) reasons for enmity between France and England, (*b*) caution of Louis 16, (*c*) circumstances that favored the alliance, (*d*) results.

6 Give an account of hindrances to domestic and foreign commerce at the close of the Revolution. Show how these hindrances were removed.

7 Explain the checks and balances of the Constitution of the United States, showing (*a*) how the president restrains Congress, (*b*) how Congress limits the power of the president, (*c*) how legislative haste is prevented, (*d*) how the written Constitution is preserved from violation.

8 State *two* important principles advocated by the National Republican party, afterward called the Whig party.

9 State in regard to the Erie canal (*a*) its purpose, (*b*) the approximate date of its completion, (*c*) its influence on the growth of New York State, (*d*) why it is less used now than formerly, (*e*) arguments for or against its enlargement.

10 Write on *two* of the following: (*a*) geographic divisions of the area of the Southern Confederacy, (*b*) the effect of the geographic divisions of the Confederacy on the campaigns of the Civil War, (*c*) why Virginia became the great battle-ground of the Civil War.

11 Define or explain, with reference to the Civil War, *four* of the following: (*a*) blockade-runner, (*b*) contraband of war, (*c*) draft, (*d*) copperhead, (*e*) "Cotton is king," (*f*) Trent affair.

12 Mention *three* causes of the rapid agricultural development of the west since 1860. Show how this development has affected (*a*) the value of farm lands in the east, (*b*) industries in the east.

Note to the student.

Kindly answer the following for the benefit of the examiner:

a Have you studied *intensively* the history of New York State or any given period of United States history?

b Have you kept a notebook?

c What books have you read in connection with your study of advanced United States history?

High School Department

182D EXAMINATION

ADVANCED UNITED STATES HISTORY

Thursday, June 16, 1904—9.15 a. m. to 12.15 p. m., only

Answer eight questions but no more. *If more than eight are answered only the first eight answers will be considered. Each complete answer will receive* 12½ *credits. Papers entitled to 75 or more credits will be accepted.*

1 Compare colonial Virginia with colonial New England as regards (*a*) industries, (*b*) political organization, (*c*) educational facilities. Explain how geographic conditions in each section partially account for differences in mode of living.

2 Mention and describe *two* events of English history that promoted colonial settlements in North America.

3 Mention the European nations that, at the beginning of the 18th century, claimed the territory of the United States. Show approximately, by map or otherwise, the extent of the claims of each nation mentioned, and state the basis of the claims of each.

4 Give an account of the treatment accorded to New England by James 2.

5 Give an account of the services of Sir William Johnson in the settlement and defense of colonial New York.

6 Mention *three* articles of commerce that were commonly used as currency in colonial times. Account for the scarcity of gold and silver coin in the colonies.

7 State *three* important acts of the First Continental Congress (1774).

8 Give the boundaries of the Northwest Territory. Mention *four* states that had more or less conflicting claims in this territory. Show how these conflicting claims were adjusted.

9 Explain in regard to the following extract from a debate in the House of Representatives (*a*) what war was under consideration, (*b*) what were *two* causes of the war, (*c*) what criticism of conduct of the war was common, (*d*) what plans the speaker probably had in mind when he said, "Negotiate the terms of a peace at Quebec or Halifax":

> An honorable peace is attainable only by an efficient war. My plan would be to call out the ample resources of the country, give them a judicious direction, prosecute the war with the utmost vigor, strike wherever we car

> reach the enemy, at sea or on land, and negotiate the terms of a peace at Quebec or Halifax. We are told that England is a proud and lofty nation that disdaining to wait for danger, meets it half-way. Haughty as she is, we once triumphed over her, and if we do not listen to the counsels of timidity and despair we shall again prevail. In such a cause, with the aid of Providence, we must come out crowned with success; but if we fail, let us fail like men — lash ourselves to our gallant tars, and expire together in one common struggle, fighting for "seamen's rights and free trade."

10 State with what subjects American literature was principally concerned in (*a*) the Colonial period, (*b*) the Revolutionary period. Show by reference to authors or books effects on literature of (*a*) the slavery dispute, (*b*) the Reconstruction period.

11 Compare Washington with Lincoln as regards (*a*) birth, (*b*) education in school and in practical affairs, (*c*) public services, (*d*) ability to understand the people.

12 Write on *two* of the following relating to New York State: (*a*) the abolition of slavery, (*b*) the origin and growth of the free school system, (*c*) the Croton aqueduct.

Note to the student.

Kindly answer the following for the benefit of the examiner:

a Have you studied *intensively* the history of New York State or any given period of United States history?

b Have you kept a notebook?

c What books have you read in connection with your study of advanced United States history?

High School Department

179TH EXAMINATION

CIVICS

Thursday, October 1, 1903 — 1.15 to 4.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: republic, patent, ambassador, charter, treaty, contract, codicil.

2 Show that government is necessary and mention *two* proper means of limiting the power of the executive head of a government.

3 Distinguish between common law and statute law.

4 Explain historically the use of each of *three* of the following terms: clan, tun, mark, borough, shire.

The following five questions refer to New York State:

5 Into what classes are villages divided? Give a reason for such classification.

6 Give with reference to *each* of the following (*a*) length of term, (*b*) *two* duties: mayor of New York city, district attorney (county), highway commissioner (town).

7 Describe the organization and state the functions of *one* of the following: Court of Appeals, State Board of Charities.

8 State the manner of obtaining office, the length of term and the chief duty of *each* of the following: member of assembly, railroad commissioner, lieutenant-governor.

9 Give the names of *three* administrative departments included in the government of New York city. Describe the organization of *one* of these departments.

The following questions refer to the United States:

10 Mention *three* points of weakness in the government under the Articles of Confederation. Show how the Constitution remedied these defects.

11 Give in substance the provision of the Constitution in reference to each of *two* of the following: choosing presidential electors, original jurisdiction of the Supreme Court, validity of the public debt.

12 Give arguments for or against choosing United States senators by direct popular vote.

13 State the manner of obtaining office, the length of term and the chief duty of *each* of the following: president, secretary of state, Circuit Court judge.

14 Mention (*a*) *three* powers possessed both by the United States government and by the state governments, (*b*) *two* prohibitions on the United States.

15 What is a copyright? Explain the manner of obtaining a copyright and state for how long a term it is issued.

High School Department

179TH EXAMINATION

CIVICS

Friday, October 2, 1903 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: civics, state, forgery, reprieve, will, libel, ex post facto law.

2 Distinguish between monarchy and democracy and mention *two* classes of each of these forms of government.

3 Trace the development of the county from its origin to its transference to America.

The following six questions refer to New York State:

4 Show why a village needs a government distinct from the government of the town in which it is situated.

5 State the manner of obtaining office, the length of term and *one* important duty of *each* of the following officers: superintendent of public instruction, senator, adjutant-general.

6 Mention (*a*) *three* duties of the county school commissioner, (*b*) *two* duties of the surrogate.

7 Give a reason for or against unanimity of jury verdict in (*a*) civil cases, (*b*) criminal cases.

8 Distinguish between the duties of the state comptroller and those of the state treasurer.

9 Describe the power exercised by the city authorities in reference to bills passed by the Legislature, for special laws relating to the city.

The following questions refer to the United States:

10 Mention the successive steps in the process of nominating and electing a vice-president.

11 Show the importance of the provision of the Constitution forbidding (*a*) the granting of titles of nobility, (*b*) the abridgment of freedom of speech.

12 Write on *one* of the following: United States Civil Service Commission, Department of Commerce and Labor.

13 Give with reference to *each* of the following (*a*) manner of obtaining office, (*b*) length of term, (*c*) *one* important duty: postmaster-general, United States senator, justice of the Supreme Court.

14 Describe the system of indirect taxation practised by the United States government.

15 Give arguments for or against the requirement that a candidate for member of the House of Representatives must be an inhabitant of the district in which he is chosen.

High School Department

180TH EXAMINATION

CIVICS

Thursday, January 28, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: political right, corporation, deed, forgery, treason, extradition, citizen.

2 Distinguish between a despotism and a democracy and give an example of each.

3 Show the importance of the caucus as a factor in securing wholesome government.

The following six questions refer to New York State:

4 Describe the state militia, touching on (*a*) persons composing it, (*b*) duties.

5 Into what classes are cities divided? Give a reason for this classification.

6 Give with reference to *each* of the following (*a*) length of term, (*b*) *two* duties: town clerk, district attorney (county), clerk of common school-district.

7 Describe the organization and state the principal function of *one* of the following: Appellate Division of the Supreme Court, State Tax Commission.

8 Give in substance the provision of the Constitution regarding (*a*) registration for the purpose of voting, (*b*) court for the trial of impeachment.

9 Give with reference to *each* of the following (*a*) manner of obtaining office, (*b*) length of term, (*c*) *one* duty: judge of the Court of Claims, comptroller, superintendent of banks.

The following questions refer to the United States:

10 Show the importance of the provision of the Constitution forbidding (*a*) suspension of the writ of habeas corpus, (*b*) the coinage of money by states.

11 Give the successive steps in the process of naturalization.

12 Mention *two* ways in which the speaker of the House of Representatives may exercise great influence on legislation.

13 Give with reference to *each* of the following (*a*) manner of obtaining office, (*b*) length of term, (*c*) *one* duty: vice-president, secretary of war, United States senator.

14 State in reference to the president (*a*) *three* executive powers, (*b*) *one* legislative power.

15 Show the importance of the threefold division of civil power under the Constitution.

University of the State of New York

High School Department

181ST EXAMINATION

CIVICS

Thursday, March 24, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: state, consul, monarchy, veto, arson, mortgage, writ of habeas corpus.

2 Show that the necessity for government arises from (*a*) selfishness, (*b*) differences of opinion.

3 Explain the following quotation: "Universal suffrage has its evils, but it undoubtedly acts as a safety-valve."

The following six questions refer to New York State:

4 What is the source of a village charter? Mention *three* important duties of a village board of trustees.

5 Describe the organization and state the principal function of *one* of the following: Civil Service Commission, The Canal Board.

6 Give with reference to *each* of the following (*a*) length of term, (*b*) *two* duties: sheriff, county judge, constable (town).

7 Give in substance the provision of the Constitution in reference to each of *two* of the following: freedom of worship and of religious opinion, removal of judges, tolls on the canals and the manner of providing funds for canal maintenance and improvement.

8 Explain why the amendment of the Constitution is made more difficult than the repeal of a statute law.

9 Give with reference to *each* of the following (*a*) manner of obtaining office, (*b*) length of term, (*c*) *one* duty: comptroller, superintendent of prisons, judge of the Court of Appeals.

The following questions refer to the United States:

10 Mention (*a*) *three* important powers of Congress, (*b*) *two* prohibitions on the United States.

11 State what person or body is authorized by the Constitution to (*a*) raise armies, (*b*) choose ambassadors, (*c*) try impeachments, (*d*) try controversies between states.

12 Mention the successive steps in the process of choosing a nominee for the presidency.

13 Give with reference to *each* of the following (*a*) manner of obtaining office, (*b*) length of term, (*c*) chief duty: vice-president, secretary of state, speaker of the House of Representatives.

14 Write on *one* of the following: Department of Commerce and Labor, the United States Circuit Courts.

15 Show to what extent the several states, in their rights and powers, are independent of the United States.

University of the State of New York

High School Department

182D EXAMINATION

CIVICS

Thursday, June 16, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but** **no more.** **If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1 Define *five* of the following: democracy, government, executive, consul, civil right, copyright, embargo.

2 Show how the primary (caucus) may be utilized to (*a*) promote the general welfare, (*b*) defeat the popular will.

3 Distinguish between slander and libel and mention *one* element common to both.

4 State *one* objection to a written constitution as a basis of national government and *one* objection to an unwritten constitution as a basis of national government.

The following five questions refer to New York State:

5 Mention (*a*) *two* duties of the secretary of state, (*b*) *two* duties of the attorney-general.

6 Give *five* constitutional qualifications of a voter.

7 Write on *one* of the following: State Commission in Lunacy, Court of Appeals.

8 Give with reference to *each* of the following (*a*) length of term, (*b*) *two* duties: county treasurer, highway commissioner (town), trustee of common school district.

9 State *three* legislative duties of the board of supervisors.

The following questions refer to the United States:

10 State in substance a provision of the Constitution by which uniformity of commercial regulations among the states is assured. Discuss the importance of such regulations.

11 Give with reference to *each* of the following (*a*) manner of obtaining office, (*b*) term of office, (*c*) *one* duty: member of the House of Representatives, vice-president, judge of the Court of Claims.

12 Give the successive steps in the process of choosing a candidate for the presidency.

13 Write on *one* of the following: the Interstate Commerce Commission, the Department of the Interior.

14 Mention (*a*) *two* powers prohibited to the federal government and to the state governments, (*b*) *two* powers possessed by the federal government but prohibited to the states.

15 Distinguish between the terms "loose construction" and "strict construction" as used in the interpretation of the Constitution.

High School Department

179TH EXAMINATION

ECONOMICS

Wednesday, September 30, 1903—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: rent, interest, natural agent, industrial trust, reciprocity, tariff, exchange.

2 Mention *two* considerations affecting the volume of demand for an article of manufacture. Explain.

3 Show that the general level of wages in a given industry is due to conditions largely beyond the control of the individual employer.

4 Mention *four* elements in the cost of production affecting the price charged for a sack of flour.

5 Show how the productive capability of a community is affected by (*a*) industrial environment, (*b*) mastership in industry.

6 Discuss the following statement: "Fixed and circulating capital must stand in a definite relation to each other."

7 Mention and discuss *one* evil incident to a system of government support by indirect taxation.

8 Explain the term contraction of credit and mention *two* considerations leading to such contraction.

9 State *two* objections to nationalization of the land. Mention a leading argument in favor of such nationalization.

10 Show that profits tend to a minimum.

11 State *two* difficulties in the way of industrial cooperation. Explain.

12 Discuss the relative merits of gold and silver for use as money, touching on (*a*) stability of value, (*b*) convenience in use.

13 Show that an extension of skill and of ability in industry raises the general level of welfare.

14 "Protection is a necessary means of maintaining national independence." Give arguments for or against the above proposition.

15 Explain the difference between communism and socialism.

High School Department

180TH EXAMINATION

ECONOMICS

Wednesday, January 27, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: value, interest, boycott, cost, capital, distribution, exchange.

2 Mention the three primary agents or factors of production and show that *each* of these is an essential factor in the production of wealth.

3 Show that the benefits derived from an exchange of commodities are as a rule shared by both parties to the transaction.

4 Explain the relation that extensive stock speculation sustains to the volume of currency available for legitimate business.

5 Mention in reference to credit (*a*) *three* advantages, (*b*) *two* possible disadvantages.

6 Give arguments for or against the laissez-faire doctrine.

7 Show that the degree of success attained in a manufacturing industry depends largely on skill in management.

8 Discuss, from the workman's point of view, the propriety of a general law limiting the duration of the working-day to eight hours.

9 State the effect of a permanent fall in the market value of gold bullion on the purchasing power of gold coin. Explain.

10 Show that the law of diminishing returns in agriculture is universal in its application.

11 Discuss, from the capitalist's point of view, government ownership of railways.

12 Explain the following quotation: "Production at the greatest disadvantage determines normal value."

13 Account for the recent organization and federation of various classes of employers in the industrial world.

14 Mention *four* purposes for which taxes may properly be levied by the government. State *one* evil incident to a system of indirect taxation.

15 Show that international trade is based on difference in relative prices.

High School Department

181ST EXAMINATION

ECONOMICS

Friday, March 25, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *five* of the following: economics, price, bimetallism, wealth, demand, distribution, circulating capital.

2 Mention *two* evidences of improving industrial conditions among workmen in the United States. Discuss *one* of these evidences.

3 Discuss the law of diminishing returns as applied to mines.

4 Define value and show how it is commonly measured.

5 Explain the increased interdependence of men and industries growing out of division of labor.

6 Mention the two leading instruments of exchange, and comment on their relative importance in our present business system.

7 Give arguments for or against a general policy of "open shop" on the part of employers.

8 The supply of some commodities is capable of increase but only at increasing cost. Explain.

9 Explain the importance of a close study of market requirements on the part of a manufacturer.

10 State *two* considerations influencing borrowers in reference to the rates of interest that they are willing to pay. Explain in each case.

11 In 1780 the price in paper money of a barrel of flour rose as high as $1575. Explain.

12 State *two* of the leading objections to socialism. Discuss *one* of these objections.

13 Write on *one* of the following: Ricardo's theory of rent, the single tax theory.

14 Give arguments for or against the purchase and control by the national government of all telegraph and telephone lines in the United States.

15 Explain the following quotation: "There is not perfectly free competition of capital."

High School Department

182D EXAMINATION

ECONOMICS

Wednesday, June 15, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but* no more. *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.

1 Define *five* of the following: commodity, supply, credit, value, raw material, profits, natural agent.

2 Show that improvements in methods of cultivation tend to counteract the law of diminishing returns from land.

3 Mention *three* qualifications essential to the manager in the successful carrying on of a great industry. Discuss *one* of these qualifications.

4 Distinguish between productive consumption and unproductive consumption. Give an example of each.

5 State circumstances under which *each* of the following is a productive worker: a policeman, a physician.

6 Show that industrial peace is essential to industrial prosperity.

7 Show why gold is better than silver as a standard of value for long deferred payments.

8 Explain the effect of *each* of the following on the cost of production of a given commodity: time of employment of capital before realizing returns, quality and time of labor employed.

9 Show how a country is benefited commercially by extensive foreign markets for commodities.

10 State and discuss Gresham's law.

11 Show why the return to capital and labor is as a rule higher in a new country than in an older one.

12 Account for the upward tendency in recent years of the rent values of houses in cities.

13 Show that interest is highest where the cost of production is least.

14 Account for the increasing conservatism of labor organizations in reference to (*a*) demanding higher wages, (*b*) ordering strikes.

15 Discuss the advisability, under economic conditions at present existing in the United States, of continuing a general policy of tariff for protection.

High School Department

180TH EXAMINATION

PSYCHOLOGY

Friday, January 29, 1904—9.15 a. m. to 12.15 p. m., only

Answer eight questions but **no more.** *If more than eight are answered only the first eight answers will be considered. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 Define and illustrate *each* of the following: unity of consciousness, association of ideas, involuntary attention, inductive reasoning.

2 Distinguish between physiologic process and psychologic process. Give, with explanation, an illustration to show that the one accompanies the other.

3 Explain and illustrate the law of relativity as applied to sensations.

4 Give an example of a perception and show in detail how it differs from a sensation.

5 A friend gives you a basket containing apples and pears; explain psychologically how you distinguish between them.

6 Define constructive imagination and give a psychologic analysis of its process. Show how the laws of association are active in this kind of imagination.

7 Explain and illustrate the meaning of the following: "By illusion is meant a mistaken subjective interpretation of an objective impression." Show in what way hallucination differs from illusion.

8 Give the physiologic and the psychologic basis of the following: "By the ordinary law of habit action resolves itself into character."

9 Trace the psychologic processes involved in recalling some familiar quotation word for word.

10 Give the successive stages in the formation of a judgment. Mention the causes of incorrect judgments.

11 State what is meant by reasoning by analogy and give an illustration. Show why this kind of reasoning is not always valid.

12 Account psychologically for such misspellings as (*a*) goverment for government, (*b*) there for their, (*c*) wright for right.

University of the State of New York

High School Department

182D EXAMINATION

PSYCHOLOGY

Friday, June 17, 1904—9.15 a. m. to 12.15 p. m., only

Answer eight questions but **no more.** *If more than eight are answered only the first eight answers will be considered. Each complete answer will receive* 12½ *credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *each* of the following: sensation, imagination, apperception, abstraction, experimental psychology.

2 Mention the three faculties of the mind and show, with illustrations, how each is dependent on the other.

3 Give a psychologic explanation of personal identity. Mention an illustration of the loss of personal identity.

4 As you are walking along the street you notice that it is raining and raise your umbrella; give the physiologic and the psychologic process involved in this act.

5 Explain and illustrate the difference between a correct perception and an illusion. Show that the mental process is the same in each case.

6 State the difference between remembering and recollecting and illustrate each. Explain psychologically why "cramming" is usually considered a bad mode of study.

7 Show the necessity of the imagination in (*a*) benevolence, (*b*) ambition, (*c*) scientific investigation.

8 Give the psychologic difference between voluntary attention and involuntary attention, and show how voluntary attention may become involuntary. Mention *three* reasons why it may be difficult to give close attention to a speaker.

9 Give, with explanation and illustrations, *two* reasons why habit is important in mental development. Mention the psychologic conditions that should attend the overcoming of a habit.

10 Define judgment and show that it is exercised in perception, imagination and conception.

11 Write in proper form a syllogism of which the following is the conclusion, and state the kind of reasoning involved: This man is trustworthy.

12 Explain psychologically (*a*) why it is easier to commit to memory poetry than prose, (*b*) why we remember anything that we try to forget.

High School Department

182D EXAMINATION

ETHICS

Tuesday, June 14, 1904—9.15 a. m. to 12.15 p. m., **only**

Answer eight questions but **no more.** *If more than eight are answered only the first eight answers will be considered. As this is an examination in ethics all questions must be answered from an ethic standpoint. Each complete answer will receive 12½ credits. Papers entitled to 75 or more credits will be accepted.*

1 Define *each* of the following: right conduct, virtue, temperance, evolution, conscience.

2 Give the meaning of the term good as applied to (*a*) a horse, (*b*) a man. Explain why moral judgment is involved in the one case and not in the other.

3 Give, with explanation, *two* theories as to the origin of our notions of right and wrong.

4 Distinguish between egoism and altruism. Show the relative claims of each.

5 Give, with explanation and illustration, the ethic basis of the following: "A lie makes relations impossible."

6 Explain what is meant by sanctions of morality. Define and illustrate (*a*) physical sanction, (*b*) social sanction, (*c*) moral sanction.

7 Give an ethic analysis of duty. Show why we do not regard eating, drinking and sleeping as duties. Under what circumstances would these acts become duties?

8 State the two principal functions of practical wisdom. Is the accomplished thief a wise man? Explain.

9 Define courage and show how it is a mean between two extremes. Describe *two* different forms of courage, and state, with illustration, how courage and prudence may sometimes conflict.

10 Is moral evil a necessary condition of moral progress? Explain, giving arguments and illustrations.

11 Mention and discuss *three* different conceptions of justice.

12 Prove the truth or falsity of the following statement, giving arguments and illustrations: "There is no virtue but can be transformed into a vice by over-emphasis."

High School Department

179TH EXAMINATION

STENOGRAPHY

Thursday, October 1, 1903—9.15 a. m. to 12.15 p. m., only

Note—*Candidates may take one or both of these tests. The time for dictation and for transcription is indicated in each case. The shorthand notes and the transcript are to be collected by the examiner at the close of the period assigned for each transcript. Candidates are to specify the system followed in taking down the notes. Credits depend on the accuracy of the notes and of the transcription.*

First Test

Papers entitled to 75% will be accepted. 500 words to be dictated in 10 minutes and to be transcribed in 75 minutes.

MINUTES

Providence R. I. Sep. 7, 1903

Messrs Davis & Haskell
Trenton N. J.

Gentlemen: We find it necessary to send you a supple-
½ mentary order * for 5 #635 brass bedsteads. If possible
please ship these with the goods ordered September 1.
1 Trusting that you can give us * the same terms as were
quoted for the original order, we are

Yours very truly
Jackson Bros.

½ Fulton N. Y. July 10, 1903 *

John Holmes
Oswego N. Y.

My dear John: I am in receipt of your letter announc-
ing your new business connection. Three cheers for the
2 firm * of Holmes & Wilkins. You are indeed fortunate in
securing so able and popular a man as Mr Wilkins as a
½ running mate * and I am confident that two such energetic
workers can not fail to win in the commercial race. With
3 best wishes for your continued prosperity, * I remain

Sincerely your friend
Harry Morgan

New York, June 20, 1903

Messrs Jones & Brown
New Haven Conn.

½ Dear sirs: We learn with regret * of the damage to
goods shipped you June 9. They left our warehouse in
4 perfect order, and as the railway agent gave us * a clean
bill of lading for the shipment, we would advise you to
make claim against the company for the damages.

½ In case the company * does not give the matter prompt
attention kindly inform us and we will make careful investigation in your behalf.

Very truly yours
5 Griswold & Co. *

For many hundred years manufacturers and craftsmen
of various kinds guarded the secrets of their trade as if suc-
½ cess depended on keeping others ignorant of their methods. *
The day of trade secrets has passed. In its place has
dawned the day of trade conferences, in which men discuss
6 processes of manufacture * and methods of sale. Last
winter a committee of Englishmen engaged in various trades
½ visited the United States to study American methods. *
Factories were opened to them and all information which
they sought was freely given. Later, a company of German
7 agricultural experts came to this country * to study Ameri-
can farming methods, in the hope of improving the condi-
tions at home. It is only in recent years that Europeans
½ have begun to study America, * but Americans have been
learning from Europe for a long time. The improved con-
sular service has supplied much information to American
8 producers. *

Men engaged in distinctively intellectual occupations have
long recognized the necessity of getting together to compare
½ notes and to talk over the things * in which they have a com-
mon interest. Though there have been boards of trade and
chambers of commerce for years, the trade conference in its
9 present form is a recent innovation. * It is the result of the
broader education of the world which has made men eager
½ to learn all that there is to know * about the thing in which
they are interested, whether it be the building of locomo-
10 tives, the raising of beets, or the origin of Greek roots. *

SECOND TEST

Papers entitled to 75% will be accepted. Candidates for state business credentials must obtain at least 90%. 500 words to be dictated in 5 minutes and to be transcribed in 75 minutes.

Through the efforts of Secretary Seward, Alaska was
purchased from Russia in 1867, for $7,200,000 in gold. It
has already paid for itself several times over and yet the
country is practically undeveloped. In 1895 the rentals
½ received or due the government * for the sealing privilege
had amounted to almost the original cost of the territory,
and an equal sum, it is reported, has been taken from a
single mine near Juneau, besides the millions taken out in
other places.

1 Alaska has an area of 591,000 square miles * or about
twice that of Texas. The high mountain range along the
sea-coast is covered with snow and glaciers. This rugged,
forbidding aspect has given tourists the impression that the
entire country is a snow covered waste. As a matter of
½ fact, traveling from one end of the Yukon * to the other
in summer time, one would see a tangle of luxuriant vegetation,
large forests and many of the wild berries that grow
in our own climate, but no snow. There are extensive
areas of grass land in the interior, sometimes growing waist
2 high for miles. * All the hardy vegetables are grown with
marked success everywhere in Alaska south of the Arctic
circle, except on the coast of Bering sea. Cattle and
horses are kept at every settlement of any size and several
other kinds of live stock have been kept by the Alaska
½ Commercial Company for many years. *

The development of agriculture in Alaska means the
settlement and development of the territory. It means the
making of homes, a permanent population, the rapid development
of mineral resources, the creation of wealth and the
building of a state. A glance at Finland will prove that
3 these things are possible. * This little country lies in about
the same latitude and is less than one fourth the size of
Alaska; yet agriculture is the principal industry of over
2,600,000 people. They even export large quantities of
dairy products, live stock, flax, hemp and considerable
½ grain. * Alaska has a larger agricultural area than Finland
and somewhat warmer summers, owing to the influence of
westerly winds and the Japan current.

With such facts as to resources, why is Alaska not settled?
Simply because settlers can not get title to land. There is
4 much inquiry for land, * but when the inquirer learns the
condition of affairs he changes his plans. To get title, he
must buy soldier's scrip which will cost him from $5 to $15
an acre. Then he must deposit in the surveyor-general's
office an amount to cover the cost of survey at $15 to $20 a
½ day, * and traveling expenses in Alaska. He must also
pay for office work, entries etc. The result of all this is
that a piece of raw land in Alaska would cost him as much
5 as a good, improved farm in almost any of the states. *

University of the State of New York

High School Department

179TH EXAMINATION

STENOGRAPHY

Friday, October 2, 1903—9.15 a. m. to 12.15 p. m., only

NOTE—*Candidates may take one or both of these tests. The time for dictation and for transcription is indicated in each case. The shorthand notes and the transcript are to be collected by the examiner at the close of the period assigned for each transcript. Candidates are to specify the system followed in taking down the notes. Credits depend on the accuracy of the notes and of the transcription.*

FIRST TEST

Papers entitled to 75% will be accepted. 500 words to be dictated in 10 minutes and to be transcribed in 75 minutes.

MINUTES

Boston Mass. July 9, 1903

Bernard A. Holmes
Manchester N. H.

Dear sir: We submit a catalogue showing the advantages
½ afforded by our institution. * By means of a thorough course
of instruction, we aim to secure the highest development
of the business capacities of our students. Any additional
1 information * may be obtained by writing to the secretary
Mr Charles R. Bond, 195 Tremont street.
½ Trusting that you may decide to attend our school * I am

Yours very truly
G. D. Adams

Cleveland O. Aug. 10, 1903

Mrs H. E. Birch
2 210 West 85th st. *

Dear Madam: I expect to be in New York next winter,
taking a course in higher mathematics, and I wish to find a
½ desirable boarding place. * Your house has been recommended to me by Mr Reed who was with you two years
3 ago. If it is possible * for you to accommodate me, kindly
let me know your terms as I am anxious to get the matter
settled.

Yours truly
½ L. O. Hamilton *

salesman and a good catalogue, we find him adding the
most expensive and least efficient advertising in the form
of a circular. Ninety-nine out of a hundred circulars fall
unread into the waste-basket the moment the receiver recog-
nizes them. Money spent for circulars is literally thrown
4 away. * If the arguments used in the circular were boiled
down and given space in a paper that is read by the buyer,
be he head of the firm, purchasing agent or superintendent,
the advertiser would reach a hundred potential customers,
½ at less cost, where his circulars reach one. *

Whatever may have been the method 20 years ago, or
even 10 years ago, the easiest and cheapest way to reach
the prospective customer of the present day is to take space
in a medium that he reads, and to use that space intelli-
5 gently and truthfully. *

High School Department

180TH EXAMINATION

STENOGRAPHY

Thursday, January 28, 1904—9.15 a. m. to 12.15 p. m., **only**

NOTE—*Candidates may take one or both of these tests. The time for dictation and for transcription is indicated in each case. The shorthand notes and the transcript are to be collected by the examiner at the close of the period assigned for each transcript. Candidates are to specify the system followed in taking down the notes. Credits depend on the accuracy of the notes and of the transcription.*

FIRST TEST

Papers entitled to 75% will be accepted. 500 words to be dictated in 10 minutes and to be transcribed in 75 minutes.

MINUTES

Albany N. Y. Dec. 2, 1903

Mr George Haswell
Chester Mass.

Dear sir: Your consignment of apples was received today.
½ I find on inspection * that they have been badly frozen and
are of very little value. The United Evaporating Co. of
1 this place is willing to take the entire lot * at 40 cents a
barrel, if delivery can be made by noon tomorrow. I feel
½ sure that this course would be advisable * but prefer to
submit the matter to you before closing the bargain. Kindly
telegraph me if this arrangement will be satisfactory.

Yours respectfully
2 James A. Downs *

Camden Pa. Jan. 9, 1904

Messrs Hilton & Hall
Philadelphia Pa.

Gentlemen: The apparent need of a live, up-to-date
½ hardware store * in Camden has led us to start such a busi-
3 ness at 99 Main street. Our present cash capital is $6500, *
and we have a stock of goods on hand valued at $4670.
½ We should like to do business with your house * if satis-
factory to you. Will you kindly send us your best prices
and terms on white porcelain door-knobs, yale locks and
4 carpenters' chisels? *

For further information you are referred to Johnson &
Johnson and to the National Commercial Bank, both of
this city.

Yours very truly
½ Reynolds Bros. *

The chief interests of Canada are essentially Canadian.
Under present conditions, however, they are necessarily
bound up with British interests, scattered over every con-
5 tinent. * The Canada of today, covering an area of nearly
half a million square miles, possesses mineral wealth and
½ agricultural possibilities that can hardly be estimated. *
But even with these natural advantages a people can never
become great under a colonial form of government. To be-
6 come truly great they must live under a government * that
can do business with other governments; one that can have
a foreign policy of its own, and diplomatic and commercial
½ relations with the rest of the world. *

Commercial relations between Canada and the United
States should be as free and unrestricted as it is possible to
7 make them. * The Elgin treaty of 1854 provided for the
free admission from either country to the other of a long
½ list of raw materials, * embracing most of the products
of the farm, the forest, the quarry and the waters of each
8 country; but no provision was made for fixing the rates *
on dutiable articles. Due notice having been given, this
½ treaty was terminated in 1866 by an act of Congress. *

Commerce between Canada and the United States was
far more prosperous during the years when this treaty was
9 in force than ever before. * And now unless commercial
reciprocity be soon restored, Canadian tariffs will undoubt-
edly be raised and commerce between the countries will
½ practically cease. It is not strange, * then, that in view
of the recent unfavorable decision of the boundary ques-
tion, Canadians are beginning to clamor for either inde-
10 pendence or annexation to the United States. *

SECOND TEST

Papers entitled to 75% will be accepted. Candidates for state business credentials must obtain at least 90%. 500 words to be dictated in 5 minutes and to be transcribed in 75 minutes.

Commercial geography treats of the numerous commodi-
ties produced in the different parts of the world. Some are
found in a natural state and converted to the use of man,
others are cultivated and grown by his aid, or manufactured
and changed in form or composition so as to be fitted for
½ his use. * It also treats of the markets for such commodi-
ties and their transportation. All productions of whatever
kind come originally from the earth, but they are widely
diverse in different parts of the world.

Natural conditions determine in a great degree the pro-
1 ductions and industries of a country, * and the routes for
their transportation. Hence this branch of geography must
take into consideration some of the physical features of the
earth, its climates and seasons, the conditions that determine
markets and routes of travel, and the means for making
these available.

½ Commercial geography regards the world * purely from
a commercial and industrial standpoint. In this sense the
Mississippi river is interesting, because it penetrates far into
the interior of the continent, and is used by man as the
natural channel by which a large proportion of the products
2 of the vast western prairies * may be sent to other parts
of the world. The Appalachian mountains are interesting,
because their slopes supply abundant pasture for sheep and
cattle and are covered with forests of excellent timber,
while beneath their surface iron and coal abound.

This branch of geography, then, considers rivers as chan-
½ nels of trade, * the ocean as the highway of commerce, and
countries as producers or consumers.

The diversity of climate, seasons and regional conditions
depends primarily upon the relation of the earth to the
sun. Although the earth is distant about 95,000,000 miles
from the sun, nevertheless all life on the earth is depend-
3 ent * on the sun's light and heat. Nor are the light and
heat equally distributed and equally effective on all parts
of the earth at all times. By reason of the inclination of
the earth's axis, its daily rotation thereon and its annual

½ journey around the sun, we have the great regions or zones *
of heat and cold, the succession of day and night and the
changes of the seasons. Even these are by no means ab-
solutely exact in location, degree of intensity, or dura-
tion; for, again owing to the effect of the sun on the land,
4 the water and the atmosphere, * and owing also to the
daily rotation of the earth, the air is set in more or less
violent motion, causing winds which drive our ships and
assist in distributing moisture and heat and cold. These
things affect the tides; great movements of the waters arise,
½ causing those currents of the ocean * so important to the
commerce of the world and so powerful in their climatic
effects. It will not be amiss, therefore, to review very
briefly some of these important factors, that we may better
appreciate their effects on the productions of the earth and
5 their usefulness to man. *

University of the State of New York

High School Department

181ST EXAMINATION

STENOGRAPHY

Thursday, March 24, 1904—9.15 a. m. to 12.15 p. m., only

NOTE—*Candidates may take one or both of these tests. The time for dictation and for transcription is indicated in each case. The shorthand notes and the transcript are to be collected by the examiner at the close of the period assigned for each transcript. Candidates are to specify the system followed in taking down the notes. Credits depend on the accuracy of the notes and of the transcription.*

FIRST TEST

Papers entitled to 75% will be accepted. 500 words to be dictated in 10 minutes and to be transcribed in 75 minutes.

MINUTES

Boston Mass. Feb. 29, 1904

Messrs Brown & Co.
Burlington Vt.

Gentlemen: We have today deposited for collection in
½ the First National Bank * a sight draft on you for three
hundred and fifty dollars, which please honor and oblige

Yours truly
Carter & Jackson

1 Minneapolis Minn. Mar. 2, 1904 *

C. M. Sprague, President
National Hardware Co.
Chicago Ill.

Dear sir: After a hard struggle against a persistent run
½ of ill luck * during the past two months, we are obliged to
inform you that we find it impossible to meet our engage-
2 ments, and we have decided * to submit our affairs to the
inspection of our largest creditors. Will you kindly furnish
½ the assignee, Mr W. J. Kendall, with an abstract * of your
account current for comparison with our books?

Yours very respectfully
Harding Bros.

New York, Dec. 21, 1903

Mr Thomas J. Howland
3 Schenectady N. Y. *

Dear sir: We wish to inform you that a change is to be made in the name and composition of this firm on January

½ 1st. * Mr Miller is retiring from active business and Mr
L. A. Martin will be admitted to full partnership. The
4 new firm * will be known as Lester, Martin & Co.

We beg to assure you that the business will not in any
½ way suffer by this change. * Our capital is considerably increased,
and the new member of the firm has a high reputation
5 as a buyer. It will be our earnest endeavor * to
merit the continuance of your favor, and we hope to please
you even better in the future than in the past.

Very truly yours
½ Lester & Miller *

According to a recent statement of the Austrian Chamber
of Commerce no progress has been made for years in the
6 development of Egyptian industry. * This is attributed to
the prevailing character of the people, mostly peasants, who
½ till the ground. On account of the fruitfulness of the soil, *
which assures them subsistence, these people give little
effort to cultivation, and they have no fear that their crops
7 will be injured by unfavorable weather. *

The inhabitants of the few large cities are no more disposed
to active occupation than the peasantry. What agriculture
½ is to one class, trading is to the other. * The average
Egyptian is content to make a living by selling foreign products,
instead of turning his attention to the manufacture
8 of goods for himself. * This is to some extent due to the
distance which separates Egypt from the principal industrial
nations of Europe and makes the importation of skilled labor
½ difficult. *

Further causes of the industrial backwardness of Egypt
are the lack of capital, of able supervision and of fuel.
9 Egyptian capitalists * have long been living on their
investments, chiefly in land, and are averse to industrial
operations.

½ Sugar forms an exception to these general conditions. *
A certain French company has a practical monopoly of the
domestic market, in which it does a good business besides
10 having a considerable export trade. *

SECOND TEST

Papers entitled to 75% will be accepted. Candidates for state business credentials must obtain at least 90%. 500 words to be dictated in 5 minutes and to be transcribed in 75 minutes.

In the days before the American Revolution it was generally conceded that any mother country could justly exclude foreign nations from a share in her colonial trade. All colonies were regarded as appendages of the nation that had planted them. Hence the laws of trade were made with
½ special reference * to the interest and prosperity of the mother country, with little or no regard to their effect on the colonies. England claimed the right to monopolize the carrying trade of the colonies, to exercise exclusive control over their raw materials, and to furnish them with all the
1 manufactured goods they might need. * Lord Sheffield, in this spirit, said, "The only use and advantage of America or the West India Islands is the monopoly of their home consumption and the carriage of their produce." The natural result of this type of selfishness was an effort to crush
½ out of existence * every kind of colonial industry that could come into competition with any form of industry in the mother country; it was an exhibition of that baleful spirit of commerce that wished to govern great nations on the maxims of the counter.

Smuggling resulted from this vicious system. One half
2 the commercial world * and nine tenths of the colonial merchants were engaged in it. One fourth of the signers of the Declaration of Independence were skilfully trained in this industry, which was in all the colonies as popular as it was profitable. Even our worthy Connecticut governor,
½ "Brother Jonathan," approved of it; * and Hancock had made the greater part of his princely fortune in the contraband trade. The colonists, regarding these restrictions on their trade as cruel, tyrannical and unjust, gloried in defying them. All these laws were only so many "impertinent
3 badges of slavery," and every evasion of them was, * in the view of colonial merchants and statesmen alike, a manly blow for liberty and independence. New England colonies in particular were compelled to choose between smuggling and slow starvation.

As long as England allowed the colonies to smuggle, every-
thing went well. But when, at the close of the last French
½ war, * she decided to enforce the Sugar Act of 1733, the
Revolution was not far distant. The Stamp Act was the
proverbial last straw, and was specially odious to the Ameri-
cans for two reasons. It compelled them to pay taxes with-
4 out their consent, virtually enslaving them; * the taxes
thus paid were to be used in defraying the expenses of the
civil and military government that was to keep the colonies
in subjection to English authority. They were no longer
to be 13 unruly, rebellious provinces, voting money on de-
½ mand of English officials; they were to be consolidated *
into a colonial unit, and the parliament owned by King
George, was to control them with an iron hand. A galling
feature of the whole business was that the revenues from
the taxes were to be applied to keep the colonies in a
5 position that robbed them of all self-respect. *

University of the State of New York

High School Department

182D EXAMINATION

STENOGRAPHY

Thursday, June 16, 1904 — 9.15 a. m. to 12.15 p. m., only

NOTE — *Candidates may take one or both of these tests. The time for dictation and for transcription is indicated in each case. The shorthand notes and the transcript are to be collected by the examiner at the close of the period assigned for each transcript. Candidates are to specify the system followed in taking down the notes. Credits depend on the accuracy of the notes and of the transcription.*

FIRST TEST

Papers entitled to 75% will be accepted. 500 words to be dictated in 10 minutes and to be transcribed in 75 minutes.

MINUTES

Kingston N. Y. Mar. 5, 1904

Metropolitan Woolen Co.
76 Broadway, New York

Gentlemen: Kindly send us by express 12 pieces black
½ taffeta * as per sample inclosed.

We greatly appreciated your promptness in filling our
former order and shall esteem it an added favor if you will
1 ship the above material * as soon as possible.

Yours very truly
Johnson Bros.

Boston Mass. Apr. 4, 1904

½ To whom it may concern: *

We take pleasure in recommending the bearer, Mr Henry
Baker, as a competent salesman. He has served us in that
2 capacity for the past eight years * and has at all times discharged his duties with ability. He is seeking a milder
climate and carries with him our best wishes for future
½ success. *

Holmes & Davis

Cleveland O. June 9, 1904

Thomas J. Lowell
Los Angeles Cal.

3 My dear Tom: New England winters * have been too
severe for me of late and I must seek a milder climate.
½ I therefore think seriously of going to California * when I
leave here in the fall.

As you know, I have always been a salesman and have
4 invariably been successful in that line. * Should you hear
of any desirable opening I wish you would let me know.

With kind regards to Mrs Lowell, I am

Your sincere friend
½ Henry Baker *

When coal-gas was first used for lighting large towns, the
tar which condenses from the gas was looked upon as a
5 nuisance * difficult to get rid of. After a time chemists
discovered that coal-tar was a very complicated substance,
lending itself to the production of a large number of chemicals.
½ * All the beautiful anilin dyes for coloring various
fabrics are now produced from coal-tar. It also furnishes
6 the basis for several kinds of medicine. * Saccharin, a substitute
for sugar, and carbolic acid, one of the most important
and best known antiseptics, are both products of
½ coal-tar. * Benzol, a clear and colorless liquid resembling
alcohol, is another distillate which is used for removing
grease spots from different materials and also as a solvent
7 of india-rubber. * Another by-product is naphthalene, a substance
which resembles camphor and is employed to protect
½ woolen fabrics from moths. Coal-tar is also made * into
asphalt for pavements, and with coal-dust forms by pressure
an excellent fuel. It is largely used by itself and combined
8 with other substances * to form preservative compositions
for coating wood and metal.

In addition to these, there are a large number of products
½ made from coal-tar * which can be nitrated and which form
the basis of high explosives, the best known being nitrated
9 carbolic acid, generally called picric acid. * A curious
feature of the nitro-explosives, made from the products of
½ coal-tar, is that they are unlikely to go off by shock, * and
may be handled with comparative safety.

Thus the coal-tar, which was once considered a troublesome
waste material, has now become an important branch
10 of manufacturing chemistry. *

SECOND TEST

Papers entitled to 75% will be accepted. Candidates for state business credentials must obtain at least 90%. 500 words to be dictated in 5 minutes and to be transcribed in 75 minutes.

When your business does not seem to prosper, call in the
doctor and have it medically examined. This is what is
about to be done in England, and has been done for some
time past in the United States. There are at least half a
½ dozen "business doctors" in this country, * —experts,
with a stock-in-trade of brains and experience, who may be
called in to investigate matters when a business is not what
it should be, to prescribe remedies, and to assume control
of the whole staff until the weak points are discovered and
1 made strong. *

It need hardly be said that, in business as in health, the
patient who would obtain a safe cure must repose absolute
confidence in his doctor. On the other hand, it is essential
that the business doctor should preserve absolute secrecy
regarding his patron's affairs.

½ When the business doctor is called in, * he takes control
of every department for the term of his engagement, varying
from two to six weeks. Advertising, buying, economy
of space and labor, and the complete systematizing of every
department are his particular duties. It is claimed that he
2 rarely fails to find something wrong, which when remedied *
materially increases the profits of the enterprise.

According to one doctor, the greatest difficulty he has to
contend with seems to be teaching men to advertise properly.
One man uses a two-inch space to advertise a product when
a page should be used, while another puts in full page
½ advertisements * where a single paragraph would answer.
Both are wasting their advertising funds. Intelligent advertising
is one of the most necessary qualifications for attaining
success in the business world of today.

Another of these experts recently found, in a large
3 American manufacturing concern, that too much trust *
had been placed in the workmen, who were carrying off
tools concealed in their dinner pails or under their clothing,
amounting to nearly $2000 each day. At least, such was
their value on the particular day when the men were examined
½ as they passed out of the gates for the night. *

These doctors often effect enormous reductions of staff. One case is recorded where a force of six men engaged in posting ledger accounts was reduced to a total strength of one. Through the agency of this same man, an English
4 manufacturing establishment has been saved, * in its pay-roll and time-keeping departments alone, the sum of £20,000 a year. Of course, such a man is a terror, not only to all evil-doers, but to idlers; indeed, to every one who does not
½ keep himself and his work in the highest state of efficiency. *

The one difficulty seems to be that the business doctor is a very expensive person, whose high fees a tottering firm would not be able to meet. At the same time the compensation is none too much when we consider the expert knowledge and special training necessary to carry on such
5 a work. *

High School Department

[illegible]

BOOKKEEPING

Wednesday, September [illegible] 1903 — [illegible] only

Answer questions 1–6 and [illegible] but no more. [illegible] than six [illegible] considered. [illegible] be accepted.

1–4 Make cashbook and journal entries of the following transactions in form for posting directly to the double entry ledger. [Cash items are to be entered in cashbook only.]

May 1, 1903. Began a general hardware business with an investment of cash $[illegible], merchandise $[illegible], and Henry Martin's note for $[illegible], dated April [illegible], 1903, payable [illegible] days after date, without interest.

May 2. Bought of Chase & Day on a/c [illegible] doz. carpenters' chisels @ $[illegible]; [illegible] sets knives and forks @ $[illegible]; 3 doz. hand-saws @ $[illegible]. Terms 2% off 5 days, net 30 days.

May 4. Paid for office books and stationery $15.

May 5. Sold Howard & Strong on a/c 3 doz. carpenters' chisels @ $5; 2 doz. mortise-locks @ $[illegible].

May 6. Sent Chase & Day N. Y. draft in payment of bill of May 2, less discount.

May 7. Had Henry Martin's note discounted at bank. [See investment May 1.]

May 9. Bought of Austin & Co. on a/c 10 doz. coal-hods @ $8; 12 doz. hammers @ $7; 10 kegs nails @ $3.20.

May 11. Sold Robert Henderson on a/c 6 sets knives and forks @ $1.50; 4 doz. coal-hods @ $10.

May 12. Howard & Strong paid $20 on a/c.

May 13. Accepted Austin & Co.'s draft for $125, at 10 days, in favor of John Dorn.

May 14. Robert Henderson paid bill of May 11, by check on Commercial National Bank.

May 15. Bought of Congdon & Bennett for cash 5 ice-cream freezers @ $2.40; 12 doz. door-knobs @ 80¢.

May 16. Cash sales to sundry persons to date $603.84.

5–6 Post to the ledger all items given in questions 1–4.

7 Give specific directions for closing the ledger mentioned in questions 5–6.

8 Show the proprietor's net gain by making the "Loss and gain" account for the ledger called for in questions 5–6. Inventories are merchandise $4225.50, expense $12.

9 Write (*a*) the note mentioned in the investment of May 1, (*b*) The N. Y. draft mentioned in the transaction of May 6 (Mechanics & Farmers Bank on Bank of Manhattan, New York, George Davis, cashier).

10 Write (*a*) the draft mentioned in the transaction of May 13, properly accepted, (*b*) the check mentioned in the transaction of May 14.

11 Show the proper journal entry for the draft of May 13 in the books of (*a*) the drawer, (*b*) the payee. [Mark the answers *a* and *b*.]

12 As a commission merchant in New York city make an account purchase of the following, bought for A. M. Holden Bros. Albany: 4 half chests gunpowder tea, 220 lb. @ 35¢; 2 half chests oolong tea, 86 lb. @ 20¢; 10 bags Rio coffee, 1194 lb. @ 13¢; 4 mats Java coffee, 266 lb. @ 19½¢. The charges were cartage $1.75, commission 1%.

13 Give ruling and headings for a bill book and enter in it a complete record of Henry Martin's note. [See transactions May 1 and 7, questions 1–4.]

14–15 The following accounts are to be kept by single entry, one book only to be used. The student is to devise the book in accordance with his best judgment and make the entries:

Ashman Sawyer, carpenter, does work and makes entries as follows:

May 1. Shingled barn for John Mencke, cost of. material $21.35, 3 days labor @ $2.75.

May 4. Repaired floor for Peter Fry, cost of lumber $11.50, 2 days labor @ $2.50.

May 9. Built fence for A. P. Tripp, cost of lumber $16.85, posts $2.95, labor 1½ days @ $2.50. J. Mencke paid on a/c $15.

May 13. Built hen-house for A. Fancier, cost of material $65.38, labor 7¾ days @ $2.50; received cash on a/c $50. A. P. Tripp sent in part payment of bill, 30 lb. butter @ 25¢. Repaired door-steps for John Mencke, lumber $1.10, labor 1 day $2.50.

High School Department

180TH EXAMINATION

BOOKKEEPING

Wednesday, January 27, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but **no more.** *If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Enter the following transactions according to the single entry system:

Jan. 2, 1904. Began a retail provision business in Newburg with the following capital: cash $2750, store and lot $4500 and Clarence Dean's note, dated Dec. 12, 1903, for $300, payable in 60 days, without interest.

Jan. 4. Bought of Edward Norris on account 50 bbl. salt @ $1.50; 45 bbl. beef @ $17.50; 60 bbl. pork @ $13.50.

Jan. 6. Sold John Jay on account 25 bbl. pork @ $16.

Jan. 8. Sent Edward Norris my note at 30 days for $525.

Jan. 9. Sold William Wallace, Windsor, on account 10 bbl. pork @ $16.50; 5 bbl. beef @ $19; 15 bbl. salt @ $1.62.

2–3 Post the items given in question 1 to the ledger; add net gain to your original capital and open also in same ledger the accounts needed to change to double entry system; merchandise inventory $1067.50.

4–5 Enter in cashbook and journal the following transactions according to the double entry system [Cash items are to be entered in cashbook only]:

Jan. 11. Had Clarence Dean's note discounted at bank. [See investment Jan. 2. Charge the deduction from the face of the note to *Interest*—not "Interest and Discount."]

Jan. 12. Bought of George Adams, New York, on account 30 bbl. pork @ $13.50; 30 bbl. beef @ $16.50. Terms 2% off 3 days, net 30 days.

Jan. 13. Bought office stationery for cash $15.75.

Jan. 14. Received William Wallace's draft on Joseph Johnson for $250 at 10 days sight, which has been accepted by drawee.

Jan. 15. Sent George Adams N. Y. draft in payment of bill of Jan. 12, less discount.

Jan. 16. Cash sales to sundry persons $438.50.

Jan. 18. Received John Jay's check on Traders' Bank in payment of bill of Jan. 6.

6 Post to the ledger all items given in questions 4–5. [If you have taken questions 2–3 continue the use of the ledger called for by those questions.]

7–8 Close the ledger called for by questions 2–3 and 6; merchandise inventory $1650.

9 Write (*a*) the note mentioned in the transaction of Jan. 8, (*b*) the draft mentioned in the transaction of Jan. 14, properly accepted.

10 Write (*a*) the N. Y. draft sent George Adams Jan. 15, supplying all necessary data, (*b*) the check received from John Jay Jan. 18, showing the stub.

11 Make out the bill for goods sold William Wallace Jan. 9; also a statement showing amount due at time of closing the books.

12 Write a letter to George Adams referring to your new business and stating your financial condition. In the same letter order goods mentioned in transaction of Jan. 12.

13 L. A. Countryman, Salem, shipped 200 bbl. apples to G. R. Allerton, Troy, to be sold on commission. On receipt of apples Allerton found that they had been frozen and were absolutely worthless. He paid freight @ 10¢ a bbl. and cartage @ 2½¢. The barrels were sold @ 10¢ each. Commission was 2¢ a barrel as agreed. Make an account sales.

14 Describe in detail a desirable method of filing for convenient reference the correspondence of a large wholesale business.

15 Define certified check, consignment, assignment, invoice, balance sheet.

University of the State of New York

High School Department

181ST EXAMINATION

BOOKKEEPING

Wednesday, March 23, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but no more. *If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Record the following transactions according to the single entry system:

Feb. 1, 1904. Began a flour, feed and produce business with a cash capital of $4650 and merchandise $3250.

Feb. 2. Bought of Jones Bros., Buffalo, on account 500 bu. oats @ 45¢; 20 tons bran @ $18.50.

Feb. 3. Bought of Atkins & Co., Chicago, on account 200 bbl. flour @ $4; 500 bu. corn @ 55¢.

Feb. 4. Bought of J. Wells & Son on account 50 gunny-bags @ 31¢.

2 Post to the ledger the items given in question 1, and change to double entry system by opening in this ledger accounts with *Cash* and with *Merchandise* (inventory $4935.50). If this work has been done correctly the ledger will balance.

3–4 Enter in journal and double page cashbook the following transactions according to the double entry system [Cash items are to be entered in cashbook only]:

Feb. 5. Borrowed from Milton Kieth on my note at three months $1500.

Feb. 6. Bought books and stationery for cash $5.35.

Feb. 8. Sent Jones Bros. N. Y. draft (First National Bank, Edwin Small, cashier, on Bank of Manhattan, New York) in payment of bill of Feb. 2.

Feb. 9. Sold for cash 75 bu. corn @ 60¢.

Feb. 11. Sold Thomas Lowell on account 125 bbl. flour @ $4.65. Terms, 2% off 5 days, net 30 days.

Feb. 13. Sold Robert Stoneman, Hudson, on account 10 bbl. flour @ $4.70; 250 bu. corn @ 61¢; 12 cases breakfast food @ $1.50.

Feb. 15. Received Thomas Lowell's check on National Commercial Bank in payment of bill of Feb. 11.

Feb. 17. Bought of Brown & Co., Buffalo, on account 1500 bu. wheat @ 98¢.

Feb. 19. Sold Allan Dodge on account 400 bu. oats @ 50¢; 20 bbl. flour @ $4.35.

Feb. 20. Drew a draft on Robert Stoneman at 10 days for amount of bill of Feb. 13.

5–6 Post to the ledger all items given in questions 3–4.

7–8 Make a trial balance and show present net capital. The merchandise inventory is $5633.17.

9 Write (*a*) the note mentioned in the transaction of Feb. 5, (*b*) the N. Y. draft mentioned in the transaction of Feb. 8.

10 Draw (*a*) the check mentioned in the transaction of Feb. 15, (*b*) the draft mentioned in the transaction of Feb. 20, showing acceptance.

11 Write in proper form a letter to Stoneman, giving all necessary information about his order. Make out bill for inclosure. [See transaction Feb. 13.]

12 What is the underlying principle of double entry bookkeeping? State *two* important differences between single and double entry bookkeeping.

13–14 Enter in a bill book properly ruled and headed your note (Feb. 5) and the draft mentioned in the transaction of Feb. 20. If you failed to pay your note on proper presentation, what action should be taken by Kieth? Explain.

15 Give the names of *five* books that might be used to advantage in a wholesale provision business. Explain the use of each of the books mentioned.

University of the State of New York

High School Department

182D EXAMINATION

BOOKKEEPING

Wednesday, June 15, 1904—1.15 to 4.15 p. m., **only**

Answer questions 1-4 and six of the others but **no more.** *If more than six of the others are answered only the first six answers will be considered. Division of groups is not allowed. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1-4 Make cashbook and journal entries of the following transactions in form for posting directly to the double entry ledger [Cash items are to be entered in cashbook only]:

June 1, 1904. Clarence Mills begins a wholesale and retail dry goods business in Johnstown N. Y. His investment consists of a stock of goods bought at auction for $4790, furniture and fixtures $275.80 and cash $5000.

June 3. Bought of Hall & Manson, New York, 75 pc. duchesse lace @ $2.25. Terms 2% off 5 days, net 60 days.

June 4. Cash sales to sundry persons $167.80.

June 6. Bought books and stationery for cash $41.50.

June 7. Sent Hall & Manson N. Y. draft for bill of June 3, less discount.

June 8. Cash sales to sundry persons $125.10.

June 9. Sold Hawkins & Son, Cambridge, on account 25 doz. men's kid gloves @ $9.

June 11. Bought of Eldridge Bros. on account 5 pc.—236 yd.—denim @ 9½¢ a yd.

June 13. Received from Hawkins & Son their check on Utility Bank for $65 to apply on account.

June 14. Bought of Miller & Morton, Boston, on account 10 pc.—487½ yd.—fine English serge @ $1.37½ a yd.

June 15. Sold John R. Dorn, Gloversville, on account 75 pc. duchesse lace @ $3.15.

June 16. Accepted Miller & Morton's draft at 10 days in payment of bill of June 14.

June 17. Bought soap and towels for office use for cash $2.25.

June 18. Received John R. Dorn's note @ 30 days for amount of bill of June 15.

June 20. Had Dorn's note discounted and proceeds credited. Compute at 365 days to the year and charge deduction from note to Interest.

June 21. Paid for telegrams and postage $15.75.

June 22. Cash sales to date $863.10.

5–6 Post all items given in questions 1–4.

7–8 Make in proper form a balance sheet from the ledger required in questions 5–6. The inventories are: merchandise $4470.50; furniture and fixtures $272.50.

9 Write (*a*) the check mentioned in the transaction of June 13, (*b*) the draft mentioned in the transaction of June 16, showing acceptance.

10 Write (*a*) the N. Y. draft mentioned in the transaction of June 7, supplying all necessary data, (*b*) the note mentioned in the transaction of June 18.

11 As a commission merchant in Albany you received May 4, 1904, a consignment of 1200 barrels of flour from Merchant & Co. Minneapolis, paying their sight draft on bill of lading, $300. Sales were made as follows: May 9, 360 bbl. @ $5.90; May 12, 400 bbl. @ $5.60; May 13, 440 bbl. @ $5.75. The charges were freight $275, cartage $46.50, cooperage $3.50 and commission 2%. Make an account sales.

12 Illustrate the use of special columns in a cashbook by using a column on the debit side for Mdse sales to sundry persons and one on the credit side for Expense. Enter in this book all the cash items given in questions 1–4.

13 Write, as Clarence Mills, under date of June 1, a letter to Hall & Manson, requesting prices, terms etc. on certain goods (see transaction of June 3). Also give references as to financial standing.

14 Assuming that all cash, except $150 of investment, was deposited on the date received, show the face of the bank pass book of Clarence Mills (questions 1–4).

15 Define bill of lading, goodwill, partnership, solvency, protest.

High School Department

179TH EXAMINATION

DRAWING

Thursday, October 1, 1903 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more,** *including at least one from each of the three divisions. If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Drawings may be in pencil, charcoal, pen and ink or water-colors. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted. At close of examination inclose work in double sheet and place declaration and signature on last page of double sheet.*

PICTORIAL

1 Represent free hand, in light and shade, a group of *two* objects, one of which shall be curvilinear.

2–3 Copy fig. 1, enlarging at least one fourth.

Or

Make a drawing similar in character to fig. 1.

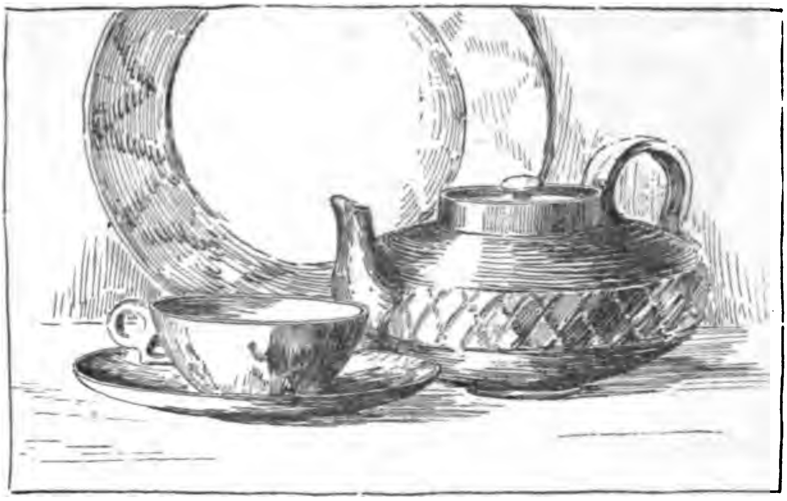

FIG. 1

4 Draw the corner of a room, the center of vision being midway between top and bottom. Show windows, wainscoting and door.

5 Sketch in outline a bit of natural scenery that you have seen.

DECORATIVE—FREE HAND AND INSTRUMENTAL

Tracing and transferring allowed in design

6 Draw the Greek lily, the vertical axis to be at least 3″.

7 Make a design suitable for the cover of a book on camping.

8–9 Copy fig. 2, enlarging at least one fourth.

Or

Make a drawing similar in character to fig. 2.

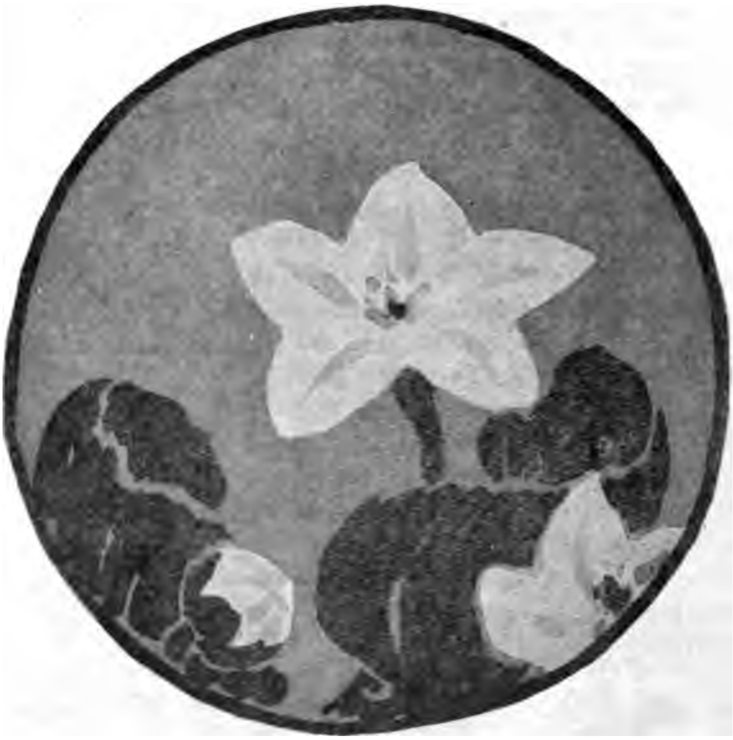

FIG. 2

10 Design a border containing a conventionalized unit.

GEOMETRIC—INSTRUMENTAL

Show all working lines

11 Draw the plan and elevation of a machine oil-can.

12 Draw the developed surface of a square prism 4″ in hight and base 2″ in diameter.

13 Construct a quatrefoil on a rectangle 1½ by 2½, the radius of each semicircle to be less than one half the side on which the semicircle is placed.

14 Construct an angle of 135°.

15 Draw the plan and elevation of a bookcase having four shelves.

High School Department

179TH EXAMINATION

DRAWING

Friday, October 2, 1903 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more,** *including at least one from each of the three divisions. If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Drawings may be in pencil, charcoal, pen and ink or water-colors. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted. At close of examination inclose work in double sheet, and place declaration and signature on last page of double sheet.*

PICTORIAL

1 Draw a group of *two* objects one of which is a cube.

2–3 Copy fig. 1, enlarging at least one fourth.

Or

Make a drawing similar in character and treatment to fig. 1.

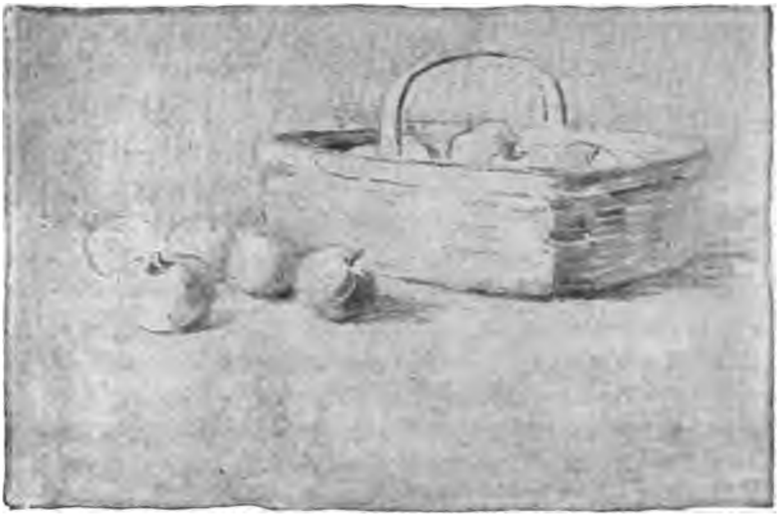

Fig. 1

4 Sketch in outline some person near you.

5 Select some quotation and illustrate it.

DECORATIVE—FREE HAND AND INSTRUMENTAL

Tracing and transferring allowed in design

6 Draw a design for an ornamental bracket.

7-8 Copy fig. 2, enlarging at least one fourth.

Or

Make a surface covering similar to fig. 2.

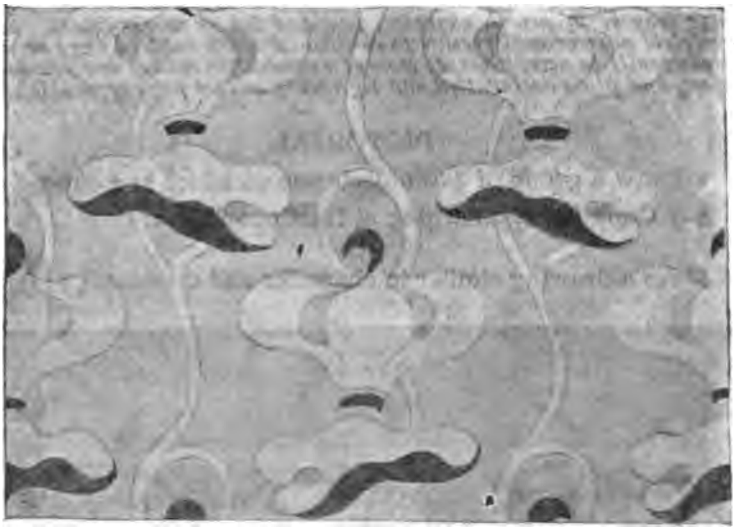

FIG. 2

9 Mention *three* ancient styles of historic ornament and illustrate one of them.

10 Conventionalize a plant form and use the unit as an element in a border for a portfolio cover. Write the name of the plant used as a motive.

GEOMETRIC—INSTRUMENTAL

Show all working lines

11 Draw a regular pentagon.

12-13 Draw plan and elevation of a vertical cylinder supporting a square plinth.

14 Draw the developed surface of a cone, the diameter of the base being 2″ and the altitude 3″.

15 Construct a triangle having angles of 30°, 30° and 120°.

High School Department

180TH EXAMINATION

DRAWING

Friday, January 29, 1904 — 1.15 to 4.15 p. m., only

Answer 10 questions but **no more,** *including at least one from each of the three divisions. If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Objects may be in sight of candidates if desired. Drawings may be in pencil, charcoal, pen and ink or water-colors. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted. At close of examination inclose work in double sheet, and place declaration and signature on last page of double sheet.*

PICTORIAL

1–2 Copy fig. 1, enlarging at least one fourth.

Or

Make a design similar in character to fig. 1.

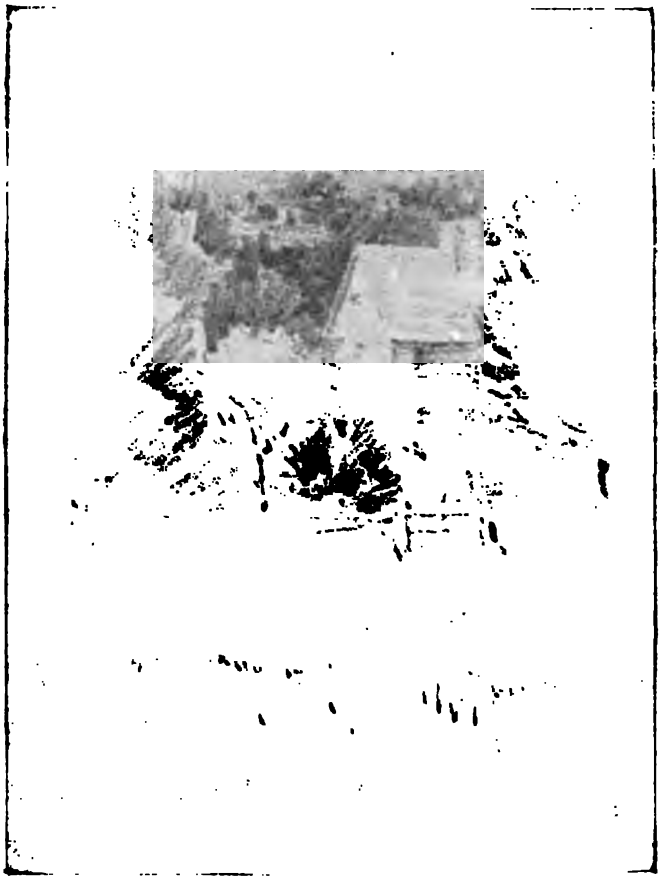

FIG. 1

DECORATIVE—FREE HAND AND INSTRUMENTAL

Tracing and transferring allowed in design

6 Make a corner design suitable for a box cover 4″ square.

7 Draw a medieval historic ornament on an axis of at least 3″. Underneath write the name of the school of ornament to which it belongs.

8–9 Copy fig. 2, enlarging at least one fourth.

Or

Make a drawing in which the flowers represented in fig. 2 are suitably arranged in a different inclosing form.

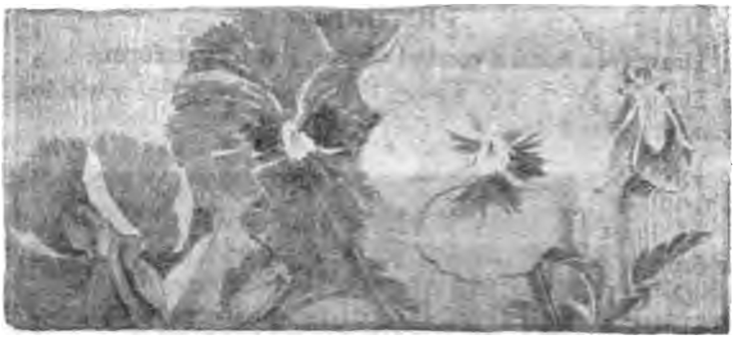

FIG. 2

10 Make a design for a border in which the unit of design is a conventionalized flower form.

GEOMETRIC—INSTRUMENTAL

Show all working lines

11 Draw the developed surface of a cylinder 1¼″ in diameter and 2½″ in hight.

12 Draw the plan and elevation of the frustum of a square pyramid with the following dimensions: side of upper base 1½″, side of lower base 2½″, altitude 3″.

13–14 Draw the developed surface of the frustum of a cone whose dimensions are as follows: diameter of base 3″, diameter of top 1″, vertical hight 1¼″.

15 Construct an angle of 135°.

High School Department

182D EXAMINATION

DRAWING

Friday, June 17, 1904—1.15 to 4.15 p. m., only

Answer 10 questions but* no more, *including at least one from each of the three divisions. If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Objects for pictorial drawing may be in sight of candidates if desired. Drawings may be in pencil, charcoal, pen and ink or water-colors. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted. At close of examination inclose work in double sheet, and place declaration and signature on last page of double sheet.

PICTORIAL

1 Represent free hand, in light and shade, or in accented line, a group of *two* objects, one of which shall be rectilinear.

2–3 Copy fig. 1, enlarging at least one fourth.

Or

Draw a group similar in character and treatment to fig. 1.

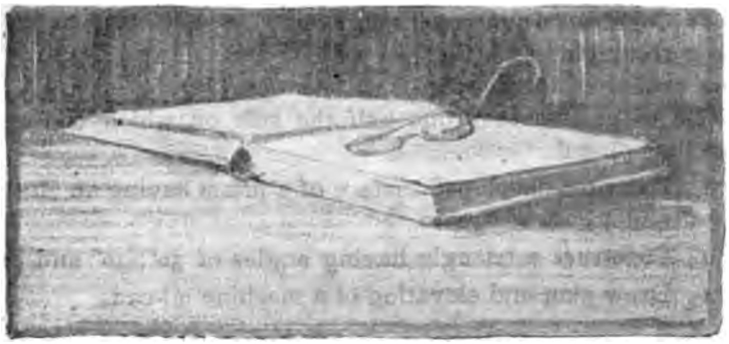

FIG. 1

4 Within a geometric figure make a sketch of natural scenery.

5 Make a free hand drawing of some object in sight.

DECORATIVE—FREE HAND AND INSTRUMENTAL

Tracing and transferring allowed in design

6 Within a square not less than 4″ on a side, draw a design suitable to ornament a floor tile.

7 Mention *three* styles of ancient historic ornament. Illustrate one, writing its name underneath.

8-9 Copy fig. 2, enlarging at least one fourth.

Or

Use the flowers drawn in fig. 2 as motives in a design.

10 Draw a Gothic historic ornament.

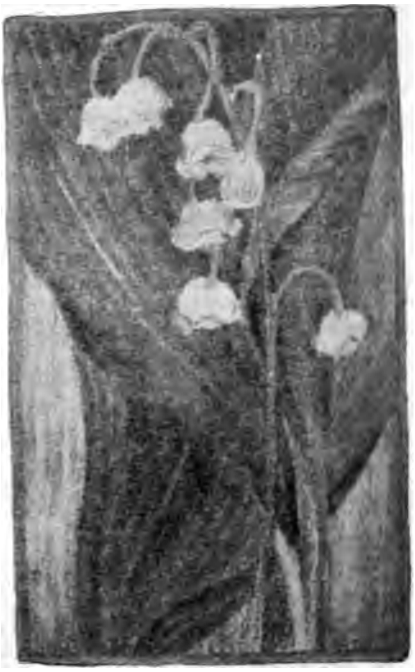

FIG. 2

GEOMETRIC

INSTRUMENTAL

Show all working lines

11 Draw plan and elevation of a simple object, not a type form.

12 Construct a quatrefoil on a rectangle 1¼″ by 2¼″, the radius of each semicircle to be less than one half the side on which the semicircle is placed.

13 Draw the developed surface of a prism having an altitude of 4″ and a base 2″ square.

14 Construct a triangle having angles of 30°, 30° and 120°.

15 Draw plan and elevation of a machine oil-can.

High School Department

180TH EXAMINATION

ADVANCED DRAWING

Monday, January 25, 1904 — 9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more,** *including at least one from each of the three divisions. If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Objects may be in sight of candidates if desired. Drawings may be in pencil, charcoal, pen and ink or water-colors. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted. At close of examination inclose work in double sheet, and place declaration and signature on last page of double sheet.*

PICTORIAL

1 Draw free hand a group consisting of a hemisphere, a cone and a cube.

2 Draw free hand a square prism resting horizontally, with right end slightly turned away from the eye. [Make the drawing not less than 4" in length.]

3 4 Copy fig. 1, enlarging at least one fourth.

Or

Make a drawing similar in character to fig. 1.

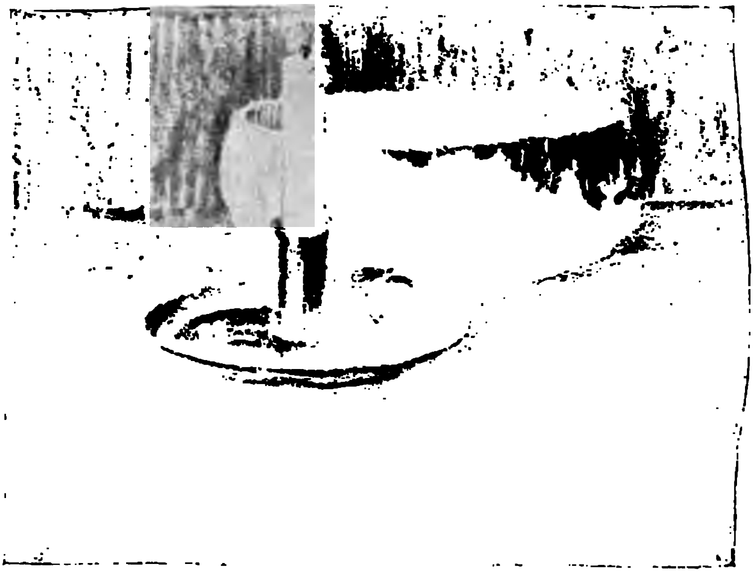

FIG. 1

5 Within an inclosing form make a sketch of natural scenery.

DECORATIVE — FREE HAND AND INSTRUMENTAL

Tracing and transferring allowed in design

6 Draw a border suitable for ornamenting a bowl.

7 Copy the daffodil flower panel (fig. 2), enlarging at least one fourth.

Or

Copy fig. 2, reversing the dark and light arrangement.

Or

Make a drawing similar in character and treatment to fig. 2.

8–9 Within an inclosing form draw a single tree of characteristic shape as an element in a landscape with simple accessories, such as a rock, a fence, a path, a clump of bushes etc.

10 Draw a medieval historic ornament. Write name of ornament underneath.

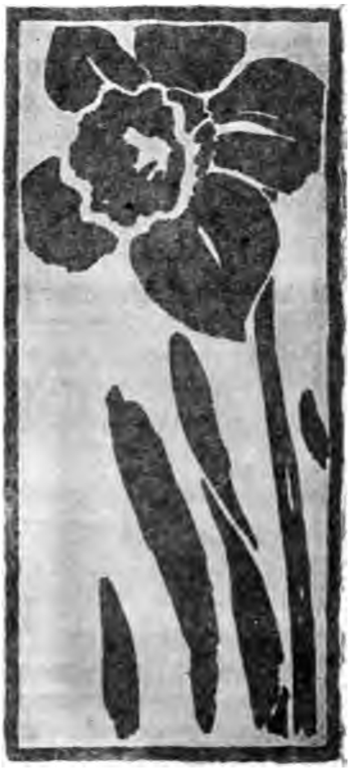

FIG. 2

GEOMETRIC

INSTRUMENTAL

Show all working lines

11–12 Draw plan and elevation of an obliquely truncated square pyramid.

13 Construct an angle of 157½°.

14 Draw top view, front view and side view of an equilateral triangular prism.

15 Draw the developed surface of a hexagonal prism, each side of whose base is 1″ and whose altitude is 4″.

University of the State of New York

High School Department

182D EXAMINATION

ADVANCED DRAWING

Monday, June 13, 1904—9.15 a. m. to 12.15 p. m., only

Answer 10 questions but **no more,** *including at least one from each of the three divisions. If more than 10 are answered only the first 10 answers will be considered. Division of groups is not allowed. Objects for pictorial drawing may be in sight of candidates if desired. Drawings may be in pencil, charcoal, pen and ink or water-colors. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted. At close of examination inclose work in double sheet, and place declaration and signature on last page of double sheet.*

PICTORIAL

1 Draw free hand, in light and shade, a basket of rectilinear outline, seen at an oblique angle.

2 Draw free hand a horizontal cylinder with its axis forming a slight angle with the picture plane.

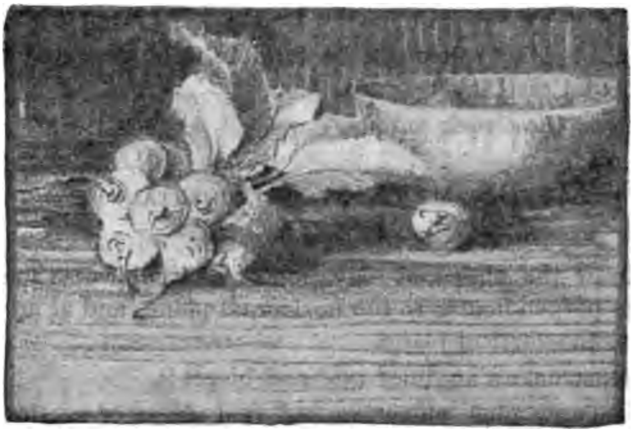

FIG. 1

3–4 Copy fig. 1, enlarging at least one fourth.

Or

Make an original drawing similar in character and treatment to fig. 1.

5 Make a sketch of some one in sight or sketch a person from memory.

DECORATIVE — FREE HAND AND INSTRUMENTAL

Tracing and transferring allowed in design

6–7 Copy the Indian border (fig. 2), enlarging it slightly.

Or

Use fig. 2 as a suggestion for a border for a similar purpose.

8 Arrange a flower form to show pleasing space variation within a geometric figure.

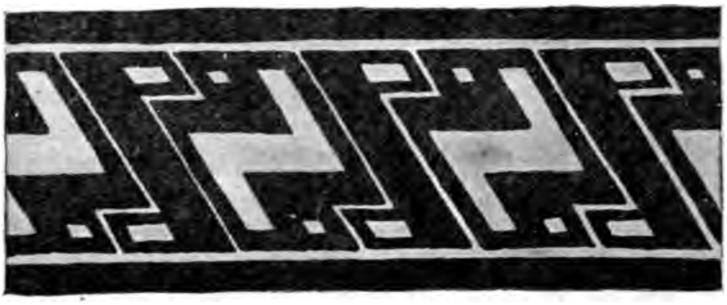

FIG. 2

9 Make a design that will be suitable to be repeated in the corners of a rectilinear figure.

10 Draw the Greek antefix.

GEOMETRIC — INSTRUMENTAL

Show all working lines

11 Draw the plan and elevation of a circular disc standing on edge perpendicular to the horizontal plane, and at an angle of 60° to the vertical plane.

12 Construct an angle of 150° and bisect it.

13–14 Draw plan, elevation and real shape of section of a square prism cut by a plane, making an angle of 45° with one of the lateral faces of the square prism.

15 Draw the developed surface of a truncated square pyramid.

University of the State of New York

High School Department

182D EXAMINATION

WORD ANALYSIS

Tuesday, June 14, 1904—9.15 a. m. to 12.15 p. m., only

***Answer 10 questions but* no more.** *If more than 10 are answered only the first 10 answers will be considered. Each complete answer will receive 10 credits. Papers entitled to 75 or more credits will be accepted.*

1 Give an analysis of *each* of the following words: *accident, display, perjure, commission.* Write sentences in which these words are correctly used.

2 Give *five* words from the stem *stant* and show by analysis the meaning of each.

3 Give the meaning of *each* of the following stems and form a word from each stem: *duct, nom, dem, helio, grad.*

4 Write words containing *five* variant forms of the prefix *sub.* Show under what conditions each form would be preferred to *sub.*

5 Show by analysis how the words in *each* of the following pairs differ in meaning: *ancestor, antecedent; proceed, precede; prefer, proffer; detain, retain; accept, except.*

6 Analyze *each* of the following words, giving the meaning of each part: *mackerel, disparity, separate, compassion, sympathy.*

7 Give *five* words derived from the stem *quadr.* Show that the differences in meaning in these derivatives are due to the suffixes.

8 Give the meaning of the stem in *each* of the following words: *edible, legacy, paragraph, ambulance, crusade, diligent, exponent, important, portico, opposite.*

9 Give the meaning of each of *five* of the following prefixes: *anti, auto, dia, eu, el, pen, trans.* Form words in which the prefixes selected are used.

10 Write sentences in which the words formed in question 9 are correctly used.

11 Show by analysis the idea common to *each* of the following pairs of words: *contract, retract; repel, repulse; prescribe, proscribe; irruption, eruption; reflect, reflex.*

12 Analyze *each* of the following words, giving the meaning of each part: *method, parody, denote, notify, telephone.* Write sentences in which these words are correctly used.

13 Show how the suffixes in the following words affect the meaning or use: *lawyer, kingdom, fruitless, lambkin, beggar.*

14 Form *five* words using the prefix *ap.* Write sentences in which the words formed are correctly used.

15 Give the meaning of the stem in *each* of the following words: *chronic, indent, edify, excursion, humility, hydrant, ambition, prelate, liniment, erase.*

University of the State of New York

High School Department

PUBLICATIONS

Gaps in the series indicate that the numbers omitted are replaced by later editions or are for other reasons out of print.

Examination Department reports 1894-97. O. *75c a vol. cloth.*

Till 1894 these reports formed part of the general University reports, known as the Regents reports. They cover courses of study in secondary schools, examination of professional students, licensing examinations for physicians, dentists, veterinary surgeons and certified public accountants.

Continued in 1898 as reports of College and High School Departments.

Examination Department bulletins 1895-98. O. *Continued as College and High School Department bulletins.*

B4 (Examinations 1) Regents Examinations. 82p. Nov. 1890. *10c.*

Historical sketch, laws, ordinances and rules pertaining to all examinations conducted by the Regents; details as to all University credentials; subjects, times and places of examinations 1891-95; notes on the reorganization of 1890.

B23 (Examinations 5) Report of Examination Department 1893. 87p. Feb. 1894. *10c.*

X6 Report of Examination Department 1894. 126p. Mar. 1895. *15c.*

X7 Medical Syllabus. 128p. Mar. 1895. *25c.*

Outline of ground covered by state licensing examinations, prepared under direction of state boards of medical examiners for guidance of candidates

Syllabus of Form Study and Drawing. 30p. 32pl. *25c.*

Reprint of p.410-34d and plates from X8, *Academic Syllabus 1895*, replaced by X24.

X9 Report of Examination Department 1895. 108p. Feb. 1896. *15c.*

X10 Examination Papers 1896. 302p. Oct. 1896. *50c; small size uniform with previous volumes 25c; boards, 50c.*

See also Question papers.

X11 Davis, W: M. (Harvard) State Map of New York as an Aid to the Study of Geography. 28p. Nov. 1896. *5c.*

Based on the topographic map in preparation by the United States Geological Survey.

X12 Report of Examination Department 1896. 114p. Jan. 1897. *15c.*

X13 College-entrance English. 148p. June 1897. *15c.*

Present English entrance requirements of representative colleges and universities. Also discussions on aims and methods in teaching secondary school English.

X14 Examination Papers 1897. 578p. Aug. 1897. *Price, see* X10.

X15 Report of Examination Department 1897. 120p. Nov. 1897. *15c.*

X16 Examination Papers 1898. 512p. Sep. 1898. *Price, see* X10.

The second edition contains only the academic papers, the professional papers being printed separately as College bulletin 3.

High School Department reports 1898-date. O. *75c a vol. cloth.*

High School Department bulletins 1898-date. *To advance subscribers 50c a year.*

X17 (High School 1) Director's Report 1898. 122p. Mar. 1899. *15c.*

X19 (High School 3) Associated Academic Principals. Proceedings of the 14th Annual Conference, Dec. 1898. 236p. Dec. 1899. *25c.*

X20 (High School 4) Academic Examination Papers 1899. 306p. Oct. 1899. *25c. Small size 12.5 x 20 cm, 25c; boards, 50c.*

X21 (High School 5) Director's Report 1899. 70p. Feb. 1900. *10*

X22 (High School 6) Associated Academic Principals. Proceedings of the 15th Annual Conference, Dec. 1899. 188p. Mar. 1900. *20c.*

X23 (High School 7) State Science Teachers Association. Proceedings of the Fourth Annual Conference, Dec. 1899. 302p. May 1900. *35c.*

X24 (High School 8) Academic Syllabus. 226p. Ap. 1900. *25c.; cloth, 50c.*

The University declines to recommend any special textbooks, but for the guidance of teachers and students it specifies the ground covered by the preliminary and academic subjects. This syllabus is the best available outline of what should be accomplished in these subjects.

X25 (High School 9) Manual Training Syllabus. 60p. May 1900. *10c.*

X26 (High School 10) Academic Examination Papers 1900. 306p. Aug. 1900. *Price, see* X20.

X27 (High School 11) Director's Report 1900. 38p. Feb. 1901. *5c.*

X28 (High School 12) Associated Academic Principals. Proceedings of the 16th Annual Conference, Dec. 1900. 164p. Ap. 1901. *25c.*

X29 (High School 13) State Science Teachers Association. Proceedings of the Fifth Annual Conference, Dec. 1900. 250p. May 1901. *35c.*

X30 (High School 14) Academic Examination Papers 1901. 322p. Aug. 1901. *25c.; boards, 50c.*

X31 (High School 15) Director's Report 1901. 34p. Jan. 1902. *10c.*

X32 (High School 16) Associated Academic Principals. Proceedings of the 17th Annual Conference, Dec. 1901. 196p. Mar. 1902. *25c.*

X33 (High School 17) State Science Teachers Association. Proceedings of the Sixth Annual Conference, Dec. 1901. 312p. Oct. 1902. *40c.*

X34 (High School 18) Academic Examination Papers 1902. 316p. July 1902. *25c.; boards, 50c.*

X35 (High School 19) Associated Academic Principals. Proceedings of the 18th Annual Conference, Dec. 1902. 136p. June 1903. *20c.*

X36 (High School 20) Director's Report 1902. 38p. July 1903. *10c.*

X37 (High School 21) State Science Teachers Association. Proceedings of the Seventh Annual Conference, Dec. 1902. 128p. Nov. 1903. *20c.*

X38 (High School 22) Academic Examination Papers 1903. 308p. July 1903. *25c.*

X39 (High School 23) Director's Report 1903. 52p. 1904. *15c.*

X40 (High School 24) Associated Academic Principals. Proceedings of the 19th Annual Conference, Dec. 1903. 172p. 1904. *25c.*

X41 (High School 25) State Science Teachers Association. Proceedings of the Eighth Annual Conference, Dec. 1903. *In preparation.*

X42 (High School 26) Academic Examination Papers 1904. 324p. 1904. *25c.*

Question papers. For the academic year 1892 (v. 1); 1893 (v. 2); 1894 (v. 3); 1895 (v. 4). D. *25c.; boards, 50c.*

For 1896–1904 *see* X10, X14, X16, X20, X26, X30, X34, X38, X42. Till 1898 each volume contained all the Regents question papers of that year in any of the academic, professional law, medical, dental, veterinary, library and extension examinations. After the first edition of the 1898 examination papers the academic and professional papers were separated.

THE NEW YORK PUBLIC LIBRARY
REFERENCE DEPARTMENT

This book is under no circumstances to be taken from the Building

MAY 19 1913